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A PILOT SURVEY OF INCOMES AND SAVINGS[1]

PURPOSE, METHOD AND PRINCIPAL RESULTS

The survey which is described here was an experiment. It attempted to collect facts on income, the stock of savings held and the flow of savings in one year. Whether the people interviewed gave all the facts and nothing but the facts is difficult to check, especially in a local survey. The area covered was confined to one town, and the population investigated was restricted in certain respects. Moreover the survey itself brought into clearer relief a number of problems which can be better handled if new and more extensive work is undertaken. Consequently the reader is warned against treating the results of the survey as though they were typical of the whole country. On the other hand the survey gives information about income, savings and asset holdings of a sample of the Oxford population that has never been obtained before in this detail, and which is likely to be better founded than any indirect estimate based upon published data.

The purpose of the survey was primarily a methodological one and the Institute hopes to gain from this experience in future survey work. The analysis of the extensive material collected by the survey will be carried into considerable detail; again not so much because of the intrinsic value of the data but in order to illustrate what use could be made of information of this kind if collected on a wider scale.

The article in this issue of THE BULLETIN *gives a general description of the purpose, methods and general findings of the survey. Subsequent articles will give a fuller account of the distribution of income, the ownership of liquid assets, the variations in savings and expenditure on housing and durable goods.*

THE DIRECTOR.

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[1] In the organisation of this survey we have received valuable advice and assistance from many quarters. At an early stage in the planning of the survey an advisory committee met which included, apart from members of the Institute, Professor D. G. Champernowne, Mr. R. L. Hall, Mr. E. F. Jackson, Mr. H. Field, Mr. L. Moss and Mr. D. Ginsburg. Particular mention should be made of the help given us by Mr. Field, who had previously spent a year at the Survey Research Center of the University of Michigan, and was able to pass on to us much useful information about their methods ; and by Mr. Moss and Mr. Ginsburg, and their colleagues of the Social Survey, who helped us with the design and layout of the questionnaire, and with numerous other matters.

We must thank the Oxford City Treasurer and members of his department for allowing us to draw our sample from their records, and for their help in doing the job.

The tabulation of results was done by the Bureau of Health and Sickness Records, and we are very grateful to them for all their work and trouble.

Special thanks are due to our investigators, amongst whom were members of the Delegacy of Social Training and of Ruskin College and a large proportion of the research staff of the Institute itself. Mrs. Esme Preston has assisted at all stages, especially in the organisation of field work and the editing and coding of questionnaires. Mr. C. B. Winsten has given very helpful advice on a number of statistical points.

INTRODUCTION

Very little is known about personal saving in this country. An estimate is made once a year in the National Income White Paper of the total volume of personal saving in the preceding year. But this estimate is acknowledged to be precarious. It is not based on direct evidence but is calculated as a residual of other national income aggregates. Of course personal saving is only one of the sources from which gross capital formation is financed. The bulk of gross saving is performed by businesses, either through provisions for depreciation or through the accumulation of undistributed profits, and by local and central government. Gross personal saving, moreover, as defined in the White Paper, is not all performed by individuals. A considerable proportion of it is saving by non-profit making bodies and life insurance companies out of their investment incomes.

Nevertheless information about the level of personal saving is important, whether that level is low or high. For saving, unlike production or consumption, can as easily be negative as positive, and quite small absolute changes in the level of personal saving can have big repercussions on other parts of the economy.

For measuring the aggregate volume of personal saving, the global approach of the White Paper, with improvements from time to time, is perhaps the best. But another, and in many ways more interesting, problem is to analyse the aggregate into its components. These components can be regarded either as the various forms in which saving takes place—through savings banks, savings certificates, life assurance, purchase of real property, etc.—or as the types of individuals, or groups of individuals, who save. It is only from information of this sort that we can begin to explain and interpret the global totals, and to venture predictions about the effect of different policies and events upon the propensity to save.

Some progress has been made in analysing total personal saving into the different forms of saving.[1] But the analysis cannot be complete. There are duplications and there are blank spaces, and in many cases we cannot be certain what proportion of the assets held in a particular form are held by individuals and what proportion by businesses and other bodies. The difficulty is that there are so many forms in which savings can be kept. Consider any individual's aggregate capital : there will be a certain amount of cash, so much in the way of goods and chattels, probably some deposits in a savings bank or other bank, perhaps investments in stocks or shares, in real property, or in a personally owned business. And there are various other forms in which his assets may be held. To estimate the components of total personal saving, the changes in personal holdings of each of these types of asset must be considered in turn. For some, *e.g.*, the national savings group, there are reasonably satisfactory figures. For others, it is impossible at present to separate the changes in personal ownership from the changes in business and government ownership. It would simplify matters if one could assume that changes in personal ownership of the assets that can be measured were in the same direction as changes in the personal ownership of the other assets. But there is no reason why this should be so.

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[1] See, for example, Esme Preston, ' Personal Savings through Institutional Channels (1937–49),' BULLETIN, September, 1950, and in this number.

Since the components of personal saving cannot be discovered from available statistical sources, it is natural to look for alternative ways of getting the required information. One way is to go to a sample of persons and ask for it. Such a sample survey, if properly designed and successfully carried out, could provide reasonable estimates of the information sought. Where ignorance is all-pervasive, such estimates are often very enlightening. A special advantage of the sample survey is that it reaches down to the ultimate economic unit, for example the individual or the household, and thereby offers an opportunity of studying the associations of unit-characteristics. In the case of savings a sample survey should enable us to find out not only what types of saving are most important but also what types of people do the saving. This would open the door to a study of the factors determining personal saving.

With these considerations in mind the Institute of Statistics decided to undertake a pilot survey of incomes and savings in the Oxford area. In this paper we outline the purpose, methods and principal results of the survey. In subsequent papers the results will be analysed in more detail.

Purpose

The purposes of the Pilot Survey were to ascertain whether the direct questioning of individuals about their incomes and savings is a technique that can be used successfully in this country; to learn something of the practical problems of conducting such a survey; and to obtain at the same time such information about the characteristics of the population surveyed as would be (1) of interest for its own sake, and (2) of use in planning a wider survey.

We wanted also to test a particular method of approach. The essence of this approach is that the persons interviewed are not asked directly how much they have saved in any particular period but the information is obtained by indirect means. Each person interviewed is, in effect, asked to help to construct a personal balance-sheet for himself (and his dependants) at the time of the interview and one year previously. Then, by comparing the net balance of assets and liabilities at the two dates for each person, we can work out the net amount of saving performed. In order to exclude the effect of capital gains and losses, the assets included in the balance-sheet are those whose cash value is identical with, or almost identical with, their nominal value, *e.g.*, deposits in savings banks, commercial banks, and building societies, and holdings of fixed value government securities, such as savings certificates and defence bonds. Holdings of cash and valuables should be included in principle but it is doubtful whether useful information on this subject can be obtained. Assets whose cash value fluctuates, such as real property, privately owned businesses, and stocks and shares, are not included in the balance-sheet but the persons interviewed are asked to state how much cash has been put into or taken out of these assets in the course of the year. Similarly, payments for life assurance and repayments of principal on mortgages, which are forms of saving, are recorded directly.

This approach is similar to that used in the Survey of Consumer Finances in the United States,[1] and it offers certain advantages for estimating saving over the more usual method of collecting family budgets.[2] Family budgets are designed principally to estimate the components of income and expenditure. Conscious voluntary saving is likely to be reported but unconscious or involuntary saving or dissaving will often exist somewhere in the residual, mixed up with unidentified amounts of income or expenditure. Moreover, since the saving of individual families fluctuates from week to week and month to month there are considerable problems in estimating the annual saving of particular groups from the data obtained in weekly budgets, even if the budgets are collected at different times in the year. On the other hand it must be admitted that the use of the balance sheet method depends for its success on the ability of the people interviewed to report with a reasonable degree of accuracy on their financial situation both at the time of interview and one year previously.

METHOD

(*a*) *Area*

The area chosen for the pilot survey was for reasons of convenience the area of the City of Oxford. The population of Oxford obviously cannot be regarded as typical of the country as a whole but it contains within itself a wide variety of types—university professors, local businessmen, factory workers, retired people and so on. Its most obviously untypical features are: the high proportion of persons connected in one way or another with the University, *e.g.*, university teachers, college scouts and landladies, and that it is an urban area and therefore contains practically no farmers, farm labourers or other rural workers. Similarly, it fails to include those really wealthy people who live in the country. Oxford's industrial composition is, moreover, not representative and the social habits of the people are different from those found in other parts of the country. As a testing ground of survey technique it is probably as good as any other town of similar size, but clearly the economic information obtained in the Oxford Survey cannot be assumed to be typical of the country as a whole.

(*b*) *The population and its units*

The population that should be covered by a survey of this type includes everyone who has, or could have, an income or any savings, in other words for practical purposes the whole population. For convenience, however, we have assumed that children under 18 have fairly small incomes and savings and that we can find out about them from their parents. Also, we group together husbands and wives into one unit, since in most cases their incomes are in fact one joint income and their savings come from that income. In this manner the population can be grouped into ' Spending Units.'[1]

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[1] The Survey is made each year by the Survey Research Center of the University of Michigan. Reports of the results are published in the summer numbers of the Federal Reserve Bulletin.

[2] See, for example, Charles Madge, *Wartime Pattern of Saving and Spending*, Cambridge, 1943.

It would have been desirable that the sample should have been drawn in such a way as to give all spending units within the Oxford City area an opportunity of being selected. But, for reasons given below, it was decided to draw the sample from a list of property and this meant that any hotel, college or other institution so selected would have presented a difficult interviewing problem. It was therefore decided to limit the population for the purposes of the survey to persons living in private dwellings and, since the majority of undergraduates would be thereby excluded, it was made a rule that all undergraduates, wherever encountered, should be excluded from the survey. Similarly, any members of the armed forces who might happen to be living in private dwellings were to be excluded. The population sampled was therefore limited to civilians and non-undergraduates living in private dwellings.

(*c*) *Sampling method*

There exists no sample frame of spending units. For sampling purposes, other than by the so-called ' quota ' method, one must either use area sampling or employ one of the three national lists, namely, the National Register, the Rating Records and the Electoral Register.[2] In this survey, we expected the principal variables—income, asset-holding and saving—to show a high dispersion (variance). If the sampling errors were to be kept to a minimum it was important to try to use the method of stratified sampling, the strata being composed in such a way as to reduce the within-strata variances for these variables below their variance within the population as a whole. And since these strata were likely to be of unequal size and variance it was also desirable to sample them with varying intensity. By so doing we should achieve another important objective, namely, to include in the ultimate sample a sufficiently large sub-sample of spending units with large incomes, asset-holdings, etc. We might, for example, want to study the characteristics of spending units whose incomes exceed £1,000 a year. In a purely random sample we could expect only about 5 per cent of the spending units interviewed to be of this type and clearly the total sample would have to be very much enlarged if we were to pick up a sufficient number of these spending units. We looked, therefore, for some means of stratifying the population by a variable that would be related in some way or other to our principal variables. The only practicable technique seemed to be to use the rateable value of the property occupied as our stratifying factor. In choosing this method we made the not unplausible assumption that there would be some relation between the size of house occupied and the income, asset-holdings and saving of the spending unit.[1]

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[1] It should be noted that our definition of the spending unit differs slightly from the definition used by the Survey Research Center. They define the consumer spending unit in such a way as to include not only the people included in our definition but also any other family members (related to the head of the family by blood, marriage, or adoption) who earn less than $10 a week or who contribute more than one-half of their income to the general family living expenses. The adoption of the American definition would have reduced the number of interviews slightly, *e.g.*, by excluding those old age pensioners who live with their relatives and possibly (according to one's interpretation of the $10 a week limit in terms of sterling) a few others. On the other hand it would have meant making some rather detailed enquiries about the income of each family member at an early stage of the interview, and this we wanted to avoid if possible. We therefore decided to use our own simplified form of the definition. Our definition of the spending unit corresponds with the Inland Revenue definition of an ' income ' for income-tax purposes, except that we include the earnings of children under 18.

[2] The characteristics of these three lists are well described and commented upon in Gray and Corlett, 'Sampling for the Social Survey,' *J.R.S.S.*, Vol. CXIII, Part II, 1950, Series A.

By taking this decision we altered our sampling unit from the spending unit as such to ' clusters ' of spending units living at selected addresses. The sample became technically a two-stage sample and there would be a small addition to the sampling error on that account. But this was likely to be more than compensated for by the advantages of stratification and of employing the varying sampling rate.

The sample of addresses (or strictly of separately rated units of property) was drawn from the rating records of the Oxford City Corporation. Stratification with varying sampling fraction was obtained by examining every 15th card in the card index, allocating each card to its appropriate stratum and selecting a different proportion of cards from each stratum for inclusion in the sample.[2] The boundaries of the strata and the sampling fractions employed are given in Table I.

The selected property units included a number of purely business premises and empty houses, in which there were no spending units, and some hotels, colleges and other institutions, the spending units of which were outside our definition of the population. The remainder consisted of inhabited private dwellings. As a few of these were not in fact visited (through

TABLE I

Stratum	*Rateable value of property*	*Sampling fraction*
1	£40 and over	$\frac{2}{45}$
2	£20—£39	$\frac{1}{45}$
3	Under £20	$\frac{1}{120}$

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[1] The Social Survey, for example, found a correlation of 0.5 between ' adjusted rateable value ' and ' economic group '. Gray and Corlett, *op. cit.*, p. 175.

[2] Strictly speaking this is not a technique of stratification (because the number of dwellings in each stratum of the population was not known) but a technique of ' double-sampling '. See J. Neyman, 'Contribution to the theory of sampling human populations ', *Journal of the American Statistical Association*, 1938, p. 101, for a consideration of the effect of using this technique on the sampling error.

the failure of one investigator to carry out his task satisfactorily) the ultimate sampling fractions within strata were slightly different from those given above.

(*d*) *Types of information collected and definitions of concepts employed*

(1) *Total income of the spending unit for the past* 12 *months*

The income required was 'gross' income before deduction of tax, insurance contributions, or anything else (except deductions for costs or expenses in the case of self-employed persons). If the respondent did not know his income before tax we recorded his income net of tax and, in the few cases in which this happened, we estimated his gross income afterwards with the help of tax tables. It was not thought advisable to ask for net income (after tax) as well as gross income but the information collected was sufficient to enable us to estimate net income[1] if required. These calculations have not yet been made and all the income figures given in this paper refer to gross income.

Details were recorded of the amount of income received by each member of the spending unit from each of the following sources :

(*a*) Wages, salaries and other earnings of employment, *e.g.*, commissions, tips and spare time work.

(*b*) Professional practice.

(*c*) Own business.

(*d*) Interest, dividends, rent and annuities, including dividends on co-operative purchases, but not including accumulated interest on savings certificates.

(*e*) 'Transfer' payments, which included all pensions, allowances and benefits from public authorities as well as pensions from private sources, regular workmen's compensation payments, alimony, and so on. Benefits from Friendly Societies and sick clubs were not included.

(*f*) Other income, in which were included voluntary allowances made by sons, daughters and other relatives or friends not living with the spending unit, and 50 per cent of gross income received from lodgers and boarders. Contributions of family members living with the spending unit towards the housekeeping expenses were regarded as payments for board and lodging and treated in the same way.

It is not easy to arrive at a definition of personal income that is suitable for all purposes. The above definition differs slightly from that used by the income-tax authorities, the chief point of difference being that we include voluntary allowances made by relatives and friends. While income of this sort is rightly regarded as free of tax to the recipient, it must have some influence on his saving propensity even if only to the extent of reducing the necessity for dissaving. One could argue that, to avoid duplication, the allowances by persons to their relatives or friends should be deducted from *their* incomes. But it can be argued on the other side that a voluntary allowance made to a relative or friend is not a deduction from one's income but a form of expenditure, and we have accepted this view for the time being. The amounts involved are, in any case, not very great.

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[1] Strictly speaking the estimate would be of income net of tax *liability*, not of tax *actually paid*.

Another difference, not so much in definition as in application, arises from our treatment of income from lodgers and boarders and family members who contribute to the housekeeping expenses. The Inland Revenue assess such income where possible and offset against it the costs incurred. These costs depend on the quality and quantity of services provided and they vary from very little for the letting of unfurnished rooms, through approximately half of the gross receipts from the letting of furnished rooms to about two-thirds of the gross receipts of full board and lodging. Contributions to housekeeping expenses by family members are usually overlooked, as they are thought to be usually barely enough to cover the cost. We considered it impracticable to ask persons with income from this source for details of costs, and unwise to accept their own estimates of the net income. It would have been better if we had distinguished receipts from each type of service and applied varying estimates of cost to them but as we had not collected the information in this form we applied a uniform rule of 50 per cent allowance for costs on all these receipts.

No attempt was made to estimate the value of income in kind, since the practical difficulties in the way of making a satisfactory estimate seemed to us to be insuperable. The most important source of such income, however, is the owner-occupation of houses and accommodation provided rent free, and as the spending units who benefited in this way can be separated in the analysis from the remainder it may be possible to examine the general effect of living in rent-free accommodation upon the propensity to save.

Money received from a legacy, gift, matured insurance policy, winnings from a football pool, etc., was not included in income.

(2) *Change in income*

Having recorded the total income of the spending unit for the past 12 months, we asked whether this amount was larger or smaller than the amount received in the previous 12 months, and if so, by how much the income had gone up or gone down.

(3) *Liquid asset holdings*

A series of questions were devoted to finding out whether the members of the spending unit held certain types of liquid asset at the time of interview and 12 months previously and, if so, how much. The list of asset-types dealt with in this manner was as follows :

Deposits in the Post Office Savings Bank.
Deposits in the Trustee Savings Bank.
Deposits in any other savings bank.
Shares or deposits in building societies.

Shares or deposits in a co-operative society.
Savings certificates.
Defence bonds.
Deposits in commercial banks.

The total holdings of the spending unit in any of these forms were regarded as its total holdings of liquid assets. Savings certificates were valued at their original purchase price.

From the information thus collected it was possible to compute the increase or decrease in the holdings of each of these types of asset separately and of the combined total of liquid assets. If any savings certificates had been cashed, we asked how much had been received in cash, as this amount would differ from the value of the certificates at original price.

(4) *Regular payments for life assurance and superannuation*

Respondents were asked how much they and other members of their spending unit paid in the past 12 months by way of premiums on life assurance and endowment assurance policies, including payments for so-called industrial assurance. They were also asked whether they contributed to a pension fund and, if so, how much they paid in the past year, not counting contributions by their employers.

(5) *Capital transactions*

Respondents were asked about a large variety of possible capital transactions, including the purchase or sale of real property, the purchase of an annuity, the receipt of a legacy or gift or the winnings of a football pool, and any increase or decrease in their indebtedness by way of mortgage, hire-purchase, credit granted by traders, personal loans, etc. They were asked if they owned stocks or shares and whether they had bought or sold any in the past twelve months. If so, they were asked how much net cash had been received or paid out in these transactions. If they owned a private business they were asked if they had put any fresh money into the business or taken any capital out.

(6) *Ownership of and expenditure on durable goods and housing*

Respondents were asked whether they owned certain specified durable goods, such as a motor car, radio set, vacuum cleaner, etc., and how much they had spent in the past 12 months on the purchase of these types of goods or any other durable goods costing £25 or more, including furniture as a collective item. They were also asked whether they owned or rented their accommodation and what rent, rates, etc., they paid.

(7) *Miscellaneous*

There were a few general questions on matters of opinion and intention, and also the usual sort of questions about such facts as the number of persons in the spending unit, the age of the head, his occupation, and so on.

The information collected has been listed above under convenient headings. It was not, of course, asked for in this order nor always in these terms. Much care and trouble was taken in trying to produce a questionnaire which could be used in an easy way and with the maximum of co-operation from the respondent.

(*e*) *The computation of net saving*

The net personal saving of each spending unit for the previous 12 months was deduced from the information collected in the following manner. We assembled a personal saving account for each spending unit, the account being credited with some items and debited with others. Since these items are, in effect, our definition of personal saving they are listed below.

Credits	*Debits*
Net increase in liquid assets held.	Net decrease in liquid assets held.
Net cash paid for property bought (after deducting loans raised on mortgage or otherwise, legal fees and stamp duty).	Net cash received from property sold (after deducting amounts repaid on mortgages, legal fees and agent's commissions).
Payments for structural additions to property owned.[1]	Durable goods sold.
Repayments of principal[2] on mortgages (or assurance premiums paid where the mortgage was associated with a life assurance policy).	
Hire-purchase payments made in the past 12 months.	Hire-purchase debts incurred in the past 12 months.
Purchase of an annuity.	Money received as legacy, gift, or winnings of football pool, etc.
Life assurance premiums paid.	Lump sum received from an insurance policy.
Contributions to pension fund.	Lump sum received from a pension fund.
Money lent.	Money borrowed.
Loans repaid by the spending unit.	Loans repaid to the spending unit.
Net decrease in accounts with traders.	Net increase in accounts with traders.
Net cash paid for purchase of stocks or shares.	Net cash received from sale of stocks and shares.
Money put into a private business.	Capital taken out of a private business.

[1] No allowance was made for depreciation of real property. On the other hand, expenditure on repairs and maintenance was not credited to saving.

[2] Where respondents were unable to specify what part of total mortgage payments made represented repayment of principal we estimated this at two-thirds of the total.

The balance struck on this account was taken to represent the spending unit's net saving out of income in the previous 12 months.

(*f*) *Fieldwork*

The survey was planned to take place during the period April 25th to May 12th. The bulk of the interviews were completed by the latter date and the remainder were completed by the end of May. This period was chosen for two reasons. Firstly, as the interviews had to be made with heads of spending units and these were mostly available only in the evenings it was desirable to do the fieldwork at a time when it would be reasonably light in the evenings. Secondly, it was convenient to choose a date soon after the end of the financial year. At this time many people would have received statements from their employers of their earnings in the previous financial year. Others would have recently had assessments to fill in and might therefore be expected to have their income figures readily available. The information collected in this survey refers, therefore, almost exactly to the financial year 1950–51. If anyone was able to give us the official figures of his income for the financial year these were accepted as being applicable to the period of ' the past 12 months ', irrespective of the date of the interview.

Investigators were recruited for the most part from members of the university and their wives. Undergraduates were not invited to take part as it was thought advisable that the investigators should be a little older and more mature. There were 35 investigators altogether of whom 10 were members of the research staff of the Institute, 10 were students of Ruskin College, 4 were members of the Delegacy for Social Training and the remainder were recruited by personal contact. The sample was divided up into areas and each investigator was given a list of addresses in one area.

Scarcely any of the investigators had had previous experience of survey work but they were intelligent and conscientious people. Their training was as full as time would allow and a close check was kept on the quality of the work. They were required to send in forms as they were completed and the forms were edited the same day as they were received. If there were any omissions, mistakes or doubtful points we got in touch with the investigator immediately by telephone or in person. In a few cases we had to ask investigators to go back to a house to clear up a doubtful point or make good an omission.

Investigators were instructed to take interviews with the heads[1] of all spending units living in the dwellings on their list. They were to make up to three calls at each address. Some made more calls where they felt it was desirable, especially where there were a number of spending units to be interviewed at one address. In the introductory words investigators explained briefly who was doing the survey and what its purpose was. They emphasised particularly that they did not know, nor ask for, the names of the persons interviewed.

Principal Results

The results given in this paper will be limited to the principal total distributions and a few analyses of special interest. More detailed analyses of the results will be undertaken in subsequent papers.

(*a*) *Accuracy*

How much reliance can be placed on the results of this type of survey? The question will be dealt with under two headings: Response Rate and Sampling Error.

Response rate

Table II shows for each stratum the estimated total number of spending units in the dwellings visited, the percentage of ' successes ' and the percentage of ' failures '. A ' success ' is an interview in which we at least obtained information about income. In nearly all cases those who were willing to give this information were also willing to disclose information about other aspects of their affairs. ' Failures ' include those who refused information about their income, those whom we could not interview because someone else in the house refused to let us interview them, and those who could not be contacted for other reasons, *e.g.*, because they were always out or too ill to be interviewed.

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[1] If a spending unit contained a married couple, the husband was always regarded as the head.

TABLE II

Response rate

(per cent of all spending units in dwellings visited)

	Stratum 1	*Stratum* 2	*Stratum* 3	*Weighted Total*
Successes	57	62	77	70
Failures	43	38	23	30
Total	100	100	100	100
Sample (estimated number of spending units in dwelings visited)	264*	208	186	—

* Including 10 spending units in a multi-household dwelling who were not approached for interview. It was assumed that these would have produced 6 successes and 4 failures if they had been approached, *i.e.* in the same proportions as those who were approached in this stratum. In dwellings containing more than three households investigators were not required to interview all spending units but to interview the spending units of 3 households taken at random.

It is of some interest to consider the reasons for failure, and these are summarised in Table III.

TABLE III

Reasons for failure to interview

(percentages of all spending units)

	Stratum 1	*Stratum* 2	*Stratum* 3	*Weighted Total*
Total failures	43	38	23	30
Respondent unobtainable (out all calls, too ill, etc.)	16	12	9	11
Interviewer not allowed to see respondent	13	7	5	7
Respondent refused interview	14	20	9	12

The percentage of direct refusals in the weighted total was 12 per cent. It was highest in stratum 2, *i.e.*, in the better type of comparatively modern but not too large house. It was lowest in stratum 3, the 'working class' stratum. Stratum 1 consists of a mixture of property, ranging from the very large mansion occupied by one household to the lodging-house in which people of quite modest incomes are to be found. It was in this stratum that we found the greatest difficulty in 'getting at' all the spending units. Sometimes the way was barred by landladies, many of whom showed a strong disinclination to allow their lodgers to be interviewed, even when they were willing to be interviewed themselves. In other cases, employers were unwilling to allow us to interview their domestic servants. This factor (of refusal to allow an interview with someone else) accounted for a loss of 7 per cent of interviews in the weighted total. This rather unexpected result can be attributed in part to the sampling technique which, by making the dwelling the sampling unit, required that we should make more than one interview at many dwellings. It was the experience of some investigators that after they had made one or two interviews in a dwelling a certain resistance developed to allowing further interviews to be made. Also, where one or more spending units were out at the first call, it probably happened that they were told of the survey by others who had been interviewed and this indirect account prejudiced them against it. This would account for some of the direct refusals met with when the same house was revisited.

How do these response rates compare with those obtained in other surveys ? Unfortunately, reports of surveys are inclined to be reticent on this point. For most commercial and opinion surveys, which employ the ' quota ' method of sampling, the question has, of course, no relevance. In such surveys there is no pre-selected list of persons to be interviewed against which the success or failure of the investigators can be measured. Investigators are simply required to complete interviews with a predetermined quota of persons of each specified type.

It happens that the results of a recent experiment in response rates in social surveys have just been published.[1] In this experiment three sets of investigators were each given three different questionnaires to use in interviews with different respondents in three London boroughs. One group of investigators consisted of students of the London School of Economics ; the other two were professional investigators belonging to the Social Survey and the British Institute of Public Opinion respectively. The average success rate of the students—over all questionnaires—was 70 per cent and of the professional organisations 84 per cent and 81 per cent.[2] Of the three questionnaires used one was purely on matters of opinion, the other two were a bit more difficult.[3] The average success rate of all investigators for the more difficult questionnaires was 75 per cent, and the average success rate of the students alone for these questionnaires was apparently less than 70 per cent. The main reasons for the higher percentage of failures amongst student investigators was a much larger proportion of refusals—13.5 per cent compared with 3 to 4 per cent for the professional investigators—and also a larger proportion of persons who were reported as ' gone away '—10.1 per cent for the students compared with 5.4 per cent for one professional organisation and 7.5 per cent for the other. These results suggest that professional investigators can attain an appreciably higher success rate than inexperienced and untrained students. The investigators used in Oxford were on the average older than the L.S.E. students and they received some training, but they were inexperienced in winning interviews. It seems likely therefore that the Oxford success rate was no worse than could be expected with non-professional investigators and that professional investigators could attain a success rate of 80 per cent or more in a survey of this sort.

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[1] J. Durbin and A. Stuart, ' Differences in Response Rates of Experienced and Inexperienced Interviewers ', *J.R.S.S.*, Vol. CXIV, Part II, 1951, Series A.

[2] *Op. cit.*, p. 173.

[3] One of these latter was about savings, but along rather different lines from our questionnaire

It is necessary to consider how far the incomplete achievement of the sample design detracts from the usefulness of the results. The general impression gained from first-hand knowledge of the survey in all its stages is that the non-respondents were drawn fairly evenly from each group within the population. Comparisons of the age and sex composition of the 'successes' with those of the total sample are given later. They suggest under-representation of females aged 60 and over in stratum 1, but otherwise the comparisons are fairly reassuring. It is possible that the proportion of self-employed in our final sample is too low, although this cannot be shown for certain because few of the failures were willing to give their occupation.

One means of checking the representativeness of the final sample is to try to compare estimates of population characteristics based on the sample with information from independent sources. The possibilities of making this sort of check, which would be great in a national survey, are unfortunately rather limited for a local survey. Very little of the information from independent sources corresponds exactly to the area chosen. Statistics of employment, for example, obtainable from the local Employment Exchange, refer to an area extending well into the country beyond the City boundaries. The same applies to the Post Office's figures of the number of sound and television receiving licences current. Only two outside figures have been found suitable for comparison : first, the preliminary results of the Population Census, which was taken a few weeks before our survey; and second, the number of private motor car licences current in the September quarter of 1950. Both these figures refer to the area of the City, but while the Census figure is strictly limited to that area the car licences in fact include a number of licences for cars owned by people living in the southern suburbs of Oxford which lie outside the City area. The number of such licences is not known but they probably amount to several hundred.

TABLE IV

Comparison of estimates from Oxford Survey and independent sources

	Our estimate	*Independent source.*
Total population of Oxford City	95,002	98,675
Number of spending units owning cars ...	6,218	—
Number of private cars registered ...	—	7,125

When considering the figures shown in Table IV one must bear in mind that the Census figure includes everyone spending the night of April 8th in Oxford whereas our estimate is for a population which excludes persons living in hotels and institutions and also undergraduates. The Census was taken during vacation but it must include quite a number of undergraduates and the hotel, hostel, hospital, and prison population of Oxford must be fairly considerable. As regards the number of cars, the survey estimate is of the number of spending units owning cars (a few spending units own more than one car) and the official figure includes a number of cars from outside Oxford as well as cars owned by businesses. These comparisons with independent sources of information may not carry us very far but at any rate they do not suggest any bias in the survey estimates of the two characteristics compared.

Sampling error

One of the most valuable functions of a pilot survey is to throw some light on the variability of the material studied. This variability has its own intrinsic interest. A good deal is known already in this country about the variability of incomes, but little or nothing about the variability of such characteristics as liquid asset holdings and net saving. The results of this survey, though limited to one area, add considerably to our knowledge of these matters. At the same time the variability of the material has an important bearing on sample design, since it determines the size of sample required to attain any specified degree of accuracy in estimating the characteristics of the population from the characteristics of the sample. When we think of the variability of the population as such we speak of its standard deviation, which is a measure of the dispersion of the individual units of the population about the population mean. When we think of the accuracy of a sample estimate of the characteristics of the population we speak of the standard error. Each type of sample estimate has its appropriate standard error but the one to which we shall pay most attention is the standard error of the mean.[1]

TABLE V. *Means and standard deviations of three principal variables, by strata*

	Mean	*Standard deviation* σ	$\frac{f}{\sigma} \times 10^5$
	£	£	
Income			
Stratum 1	769	917	4.9
Stratum 2	484	378	5.9
Stratum 3	387	211	4.0
Whole population	469	457	—
Liquid asset holdings			
Stratum 1	841	1,405	3.2
Stratum 2	483	616	3.6
Stratum 3	127	216	3.9
Whole population	321	657	—
Net saving			
Stratum 1	+4	239	18.6
Stratum 2	—12	151	14.7
Stratum 3	—8	87	9.6
Whole population	—8	137	—

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[1] Notes on the calculation of the standard error of the mean are given in the appendix.

In Table V we give the mean and standard deviation of each of the three principal variables—income, liquid asset holdings and net saving—within each stratum. These are the means and standard deviations as shown by the sample and they are used as estimates of the means and standard deviations in the population. It will be seen that the strata means and standard deviations of the first two variables differ considerably from one stratum to another, rising consistently from the lowest stratum to the highest, as one would expect. In the case of net saving, however, the differences between strata means are very slight and, in fact, statistically insignificant, *i.e.*, they could have arisen by the chances of sampling. The most striking feature of the table is the magnitude of the standard deviations. All three variables are widely dispersed and their frequency curves have long tails stretching towards the higher values. In the case of net saving there is a long tail in the negative direction also.

The accuracy of sample estimates depends on the variability of the population sampled, the size of the sample and the sampling method. We have seen that the population surveyed in this instance was highly variable. The size of sample, since this was a pilot survey, was limited. What benefit did we derive from using our particular sampling method ? We shall start by considering the appropriateness of the sampling fractions.

It has been shown[1] that the maximum benefit will be derived from varying the sampling rate if the sampling fraction for each stratum is proportional to the standard deviation of the variable within that stratum. If f_1, f_2, . . . are the sampling fractions and σ_1, σ_2 . . . the standard deviations, the maximum accuracy will be attained where $\frac{f_1}{\sigma_1} = \frac{f_2}{\sigma_2} = \ldots$ The values of $\frac{f}{\sigma} \times 10^5$ for each stratum are given in Table V and by comparing the values for each variable separately one can judge whether the planned sampling fractions were suitable or not. It will be seen that the sampling fractions originally chosen were very close to the optimum for the estimation of income and asset holdings but not so suitable for the estimation of net saving. There is, of course, unlikely to be in any survey one set of sampling fractions that will be the optimum for each of several variables and some compromise must be made. If we were to adjust the sampling fractions so as to make them optimal for estimating net saving we would have to reduce the intensity of sampling in the top stratum and increase it in the bottom stratum. The effect would be to sacrifice some accuracy in the estimation of average income and asset holdings and at the same time to reduce the absolute number of spending units with large incomes, asset holdings, etc., in the sample. Both these effects, especially the latter, would be undesirable.

Next, we shall consider the effect of the sample design on the standard errors of the three principal variables. Three possible ways of sampling are compared—random sampling, stratified sampling with uniform sampling fraction, and stratified sampling with varying sampling fraction. Estimates of the standard error of each variable for each of these three methods are given in Table VI. The relative variance (square of the standard error) has been expressed as an index of the variance in the method actually used, *i.e.*, stratified sampling with varying sampling fraction. This index measures the relative size of sample required to attain the same degree of accuracy by each of the three methods. Thus if random sampling without stratification had been employed the number of interviews would have had to have been increased by about 60 per cent in order to attain the same degree of accuracy in the estimate of average income as was achieved in the method actually employed. For the estimates of liquid asset holdings and net saving the required increase in the number of interviews would have been of the order of 75 per cent and 20 per cent respectively.

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[1] See J. Neyman, 'On the Two Different Aspects of the Representative Method', *J.R.S.S.*, Vol. XCVII, p. 580.

TABLE VI

Relative accuracy of three methods of sampling

(total sample of 416 in each case)

	Random	*Stratified with uniform sampling fraction*	*Stratified with varying sampling fraction*
Income			
Standard error of mean £	22.4	21.5	17.7
Relative variance	160	150	100
Liquid asset-holdings			
Standard error of mean £	32.2	32.1	24.5
Relative variance	175	170	100
Net Saving			
Standard error of mean £	6.75	6.75	6.22
Relative variance	120	120	100

It is noteworthy that very little benefit would have accrued from th employment of the middle type of sampling method—stratified samplin with uniform sampling fraction. The reason for this is that the within-stra variances are not all reduced by stratification. On the contrary, as can b seen from Table V, the within-stratum standard deviation of stratum 1 is each case greater than the standard deviation of the whole population. other words, the effect of our particular method of stratification was bring together in the two lower strata spending units of fairly similar typ and to leave behind in the top stratum a miscellaneous collection of spendi units varying very widely in their incomes, liquid asset holdings and savin This effect is partly to be explained by the fact that some of the large hous contain both wealthy people and their resident domestic servants who ha comparatively small cash incomes. Another explanation is that many la houses are used as lodging-houses whose inhabitants are often young peo with modest incomes, asset holdings, etc.

We had hoped to find a good degree of correlation between rateable val and the variables we were trying to measure, but we were disappointed. The correlation between income and rateable value, for example, is only + 0.176 in our sample.[1] This relative absence of correlation is due to the existence of large within-strata variances. But fortunately the variances are not all equally large and it was the ' splaying out ' of the variances that provided the principal opportunity of improving sampling accuracy. In effect, by stratifying by rateable value we succeeded in separating a stratum in which most of the variance occurs. We were thus able to release some of our interviewing force from the other strata and concentrate them on the stratum causing most of the statistical trouble. It would, of course have been even more advantageous if we could have stratified the population in such a way as to reduce considerably the within-strata variances for each stratum. But, in the absence of any method by which this could be achieved, we made the best use of the method that lay to hand.

(*b*) *Household and spending unit composition*

We pass now to a consideration of the information provided by the survey about the population[2] of Oxford. First, there is a considerable quantity of general ' demographic ' information, *e.g.*, as to the sex, age and occupation of the heads of spending units, the number of spending units per household and per dwelling, and so forth. Only those parts of this information that are immediately relevant will be given here. The remainder will be introduced at appropriate points in the succeeding papers.

TABLE VII

Average number of households and spending units in contacted dwellings[3]

Average number of	*Stratum* 1	*Stratum* 2	*Stratum* 3	*Weighted Total*
Households per dwelling	1.46	1.18	1.05	1.12
Spending units per household ...	1.57	1.42	1.32	1.38
Spending units per dwelling ...	2.29	1.67	1.38	1.54
Sample (dwellings contacted) ...	110	116	130	356

A question of considerable importance at the planning stage of a survey of this type is how many spending units one is likely to encounter per dwelling. Table VII shows that the average number of spending units per dwelling in Oxford varies from 2.29 in stratum 1 to 1.38 in stratum 3, the weighted average being 1.54. We estimate the total number of spending units in Oxford at just under 40,000 and the total population at 95,000.

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[1] The coefficient is not comparable with that found by the Social Survey. Their coefficient (+0.5) measured the correlation between ' adjusted rateable value ', *i.e.*, the rateable value of the dwelling divided by the number of households in the dwelling, and ' economic group ', *i.e.*, the income group of the head of the household. Our coefficient measures the correlation between the actual incomes of spending units and the rateable values of the dwellings in which they live.

[2] As defined for the survey.

[3] The number of dwellings ' contacted ' was somewhat less than the number of dwellings in the original sample because, firstly, one investigator's list of dwellings was omitted and, secondly, at a few of the remaining dwellings no contact was made with the inhabitants. At some of these the inhabitants were always out ; at others, the person who came to the door was unwilling to give any information at all, even about the number of people living n the dwelling.

Table VIII

Distribution of households according to the number of households per dwelling

(percentages of all households in contacted dwellings)

	Weighted total
Household living one to a dwelling	82
Households living two to a dwelling	9
Households living three or more to a dwelling	9
All households	100
Sample (dwellings contacted)	356

Table VIII gives the distribution of households[1] according to the number of households per dwelling. The percentage of households living three or more to a dwelling is considerably higher in Oxford than the national average. Gray and Corlett[2] give an estimate of 2.8 per cent for England and Wales ; in Oxford we found 9 per cent of households of this type. As multi-household dwellings are often the most difficult to deal with in a survey of this sort, we are encouraged to believe that the unusually high proportion of multi-household dwellings in Oxford was a factor making for a lower response rate than would be found in a national survey.

Table IX

Primary and secondary spending units

	Per cent of all spending units in contacted dwellings	*Per cent of spending units successfully interviewed*
Primary spending units (heads of households) ...	73	75
Secondary spending units	27	25
Related to head of household	19	18
Friend or companion	1	1
Boarder	4	4
Servant or employee	3	2
All spending units	100	100
Sample (spending units)	614	416

Spending units were classified as primary and secondary. A primary spending unit is that spending unit in each household whose head is also head of the household. Other spending units in the household are called secondary. The percentage composition of spending units according to this classification is given in Table IX. Of all the spending units discovered in ' contacted ' dwellings, *i.e.*, dwellings in which the household composition could be ascertained, 73 per cent were primaries and 27 per cent secondaries. The spending units successfully interviewed were distributed slightly differently : 75 per cent were primaries and 25 per cent secondaries. There is a suggestion here of a tendency to lose more interviews amongst secondary spending units than amongst primary spending units, the main losses occurring amongst related secondaries and servants.

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[1] The definition of a household is that used by the Social Survey. It is ' a group of people living in the same dwelling and sharing in the same housekeeping unit '. Boarders, who are provided with one or more of their meals by the housewife, are counted as members of the household, but lodgers, who do their own housekeeping, are counted as separate households. See P. G. Gray, *The British Household*, (published by the Social Survey), p. 3.

[2] *Op. cit.*, 175.

The percentage of male heads of spending units in the full sample was 68 ; amongst spending units successfully interviewed it was 70. The tendency for more losses of interviews to occur amongst females than amongst males is found in each stratum. It was particularly noticeable amongst the older women (aged 60 and over) in stratum 1 (large houses). In some of the tabulations that will be presented in subsequent papers an adjustment is made in the weighting of results to offset this latter effect.

An analysis of the average number of persons per spending unit is presented in Table X. The weighted average for all spending units was found to be 2.38 persons, of whom 1.57 were 18 and over, 0.08 were 16 or 17, and 0.73 were under 16. Since there can be only 1 or 2 persons aged 18 or over in each spending unit, it follows that 57 per cent of spending units interviewed contained two adults (married couples) and 43 per cent were headed by single persons.

If we multiply the average number of persons per spending unit by the average number of spending units per household (Table VII) we arrive at a figure of 3.28 persons per household. This is below the average for Great Britain (3.67 persons per household) and for any of the main regions of the country[1]; but there are good grounds for expecting Oxford to be unusual in this respect.

TABLE X

Average number of persons of certain age-groups in the spending unit, by strata

Average number of persons per spending unit	*Stratum 1*	*Stratum 2*	*Stratum 3*	*Weighted Total*
Aged under 16	0.38	0.58	0.88	0.73
Aged 16 and 17	0.04	0.05	0.10	0.08
Aged 18 and over	1.45	1.49	1.64	1.57
All ages	1.87	2.12	2.62	2.38
Sample (spending units interviewed)	145	128	143	416

It is of some interest to attempt to estimate the total number of spending units in the United Kingdom. If we apply our figure of 2.38 persons per spending unit for Oxford to the U.K. population at May 1951 of approximately 50½ million we obtain an estimate of 21¼ million spending units. An alternative line of approach is as follows. The spending unit is equivalent to the Inland Revenue unit of income, with the exception that for income-tax purposes children under 18 with separate incomes are counted separately.

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[1] See *The British Household*, p. 4.

Seers has estimated the total number of income-tax incomes in 1947 at 23½ million.[1] His estimate is only approximate and the same figure can be applied to the year 1950. If we subtract from this the 1½ million juveniles under 18 in employment (end-May 1950, United Kingdom)[2] we arrive at a figure of 22 million spending units in the U.K. The broad correspondence between the estimates obtained in these two different ways is perhaps reassuring.

(c) *Income*

Percentage distributions of spending units according to their income before tax is given in the top half of Table XI. The first distribution is for total income from all sources; the remainder are for each source separately. All spending units have some income, but not all have income from a particular source. While 80 per cent have income from employment (wages, salaries and other earnings of employment), only 5 per cent have income from professional practice, 6 per cent from the profits of their own business and 3 per cent from pensions from employment (' large transfers ').[3] In the intermediate position are ' small transfers ' (government transfers in the usual sense), rent, interest and dividends, and ' other sources '. ' Small transfers ' are received by 44 per cent of spending units, of which 39 per cent receive less than £100 per annum and only 5 per cent more than £100. In the case of rent, interest and dividends we treat anything less than £5 per annum as effectively a zero income from this source, since otherwise spending units with even a few pounds in the savings bank would be regarded as having some income from this source. 29 per cent of spending units were reported as having £5 or more from this source; of these 20 per cent received less than £100 and the majority of these had in fact quite small amounts. Income from ' other sources ' is almost all the estimated profits of taking in lodgers and boarders. 21 per cent of spending units reported some income under this heading.

The distribution of total income from all sources has a well-marked hump reaching a peak (modal income) somewhere between £300 and £499. Employment income also has a distinct hump and the mode in this case

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[1] See BULLETIN, Vol. XI, p. 255, or *The Levelling of Incomes since* 1938, p. 32.

[2] *M.O.L.G.*, February 1951, p. 45.

[3] In the questionnaire we put all pensions into the same group as family allowances, health benefits and other transfer incomes. This meant that no distinction was being made between old age pensions, which are normally treated as government transfers, and pensions from specific pension schemes, *e.g.*, pensions of teachers, or of Indian civil servants. This was obviously a mistake—the sort of mistake that a pilot survey is intended to reveal—but fortunately it could be rectified fairly completely afterwards. On analysis of the total distribution of ' transfers ' it became clear that there was a complete break in the distribution between £150 and £200, which strongly suggested that the two sorts of ' transfers ', government transfers and pensions from employment, formed two non-overlapping distributions. This is confirmed by the following consideration. It is, as far as we know, impossible to receive more than £150 per annum by way of government transfer ; on the other hand, all the pensions from employment in our sample were thought to be above £150. We have therefore divided the transfer distribution in two and called the two parts ' small transfers ' and ' large transfers '. The first relates effectively to government transfers in the usual sense, the second to pensions from specific employments.

TABLE XI

Income grouping of spending units, by sources of income.

(per cent of all spending units)

Total income before tax	Income from all sources	Sources of income						
		Employment	Professional practice	Own business	Rent, interest dividends	Small transfers (under £150)	Large transfers (£150 & over)	Other sources
Nil	—	20	95	94	71[1]	56	97	79
£1—99	5	7	2	2	20	39	—	14
£100—199 ...	11	7			3	5	—	5
£200—299 ...	17	13	1	2	3	—	1	1
£300—399 ...	18	20				—		—
£400—499 ...	18	12	1	1	1	—	1	—
£500—599 ...	10	10				—		—
£600—799 ...	11	7	—	1	—	—	1	—
£800—999 ...	3	2	—	—	—	—		—
£1,000—1,499 ...	4	2	1	—	1	—	—	—
£1,500—1,999 ...	1	—		—	1	—	—	—
£2,000 and over ...	2	1		—		—	—	—
All spending units	100	100	100	100	100	100	100	100

Mean income	£	£	£	£	£	£	£	£
All spending units	469[2]	330	26	21	52	22	18	17
Those with income from the source	469	414	563	344	182[3]	50	539	85
Standard deviation	£	£	£	£	£	£	£	£
All spending units	457	329	197	101	228	34	111	50
Those with income from the source	457	317	728	230	398	34	287	79
Sample (spending units interviewed)	416	416	416	416	416	416	416	416

[1] Those with less than £5 from this source.

[2] This is slightly less than the sum of the other averages in this row. The discrepancy arises from calculating the means from grouped data.

[3] Excluding those receiving less than £5 from this source.

Note.—Percentage distributions in this and subsequent tables do not always add to exactly 100. This is due to the rounding of components to the nearest whole number.

appears to be very close to £350. In this distribution the percentages on either side of the modal class are very symmetrical for a short distance but whereas the distribution is cut off at its lower end there is a long tail in the other direction. The other distributions seem to be J-shaped, even if we ignore the percentage with zero incomes. Incomes of £1,000 a year and over occur in only a few of the distributions. Of the total of 6 per cent of incomes of this magnitude from individual sources, 3 per cent arise from employment, 1 per cent from professional practice and 2 per cent from rent, interest and dividends.

In the bottom half of the table we give some of the (estimated) parameters of the distributions. For each distribution one can compute two different means, the first of which includes all the spending units whether they receive income from the source in question or not, while the second relates only to those that receive income from that source. For most purposes it is only the second of these that is of interest. But it seemed worth while to give the first also since it tells us, in effect, how much of total personal income is derived from each source. Estimated total personal income from each source in Oxford can be obtained by multiplying the mean of all spending units by the estimated number of spending units in Oxford (*i.e.*, 40,000).

Average spending unit income from all sources in 1950–51 is estimated at £469. The standard error of this estimate, as shown earlier (Table VI), is estimated at £17.7. If we assume that the spending units who were interviewed were an unbiased sample of all the spending units who should have been interviewed, the chances are 19 to 1 that the sample mean lies within twice the standard error on each side of the true mean of the population. On this assumption, and neglecting the possibility of biased errors in reporting, coding and tabulation, it is very likely that the average income of Oxford spending units lies within the range of £434 to £504, the most likely estimate being £469. Total personal money income of the U.K. in 1950 was about £10,500 million.[1] If there are 22 million spending units in the U.K., average spending unit income for the U.K. in 1950 would amount to £477.

The highest average income from an individual source (of those who receive some income from the source) is received by those with incomes from professional practice; they earn an average of £563.[2] Next come those with pensions from specific employments who receive on the average £539 from this source. Employment incomes are above incomes from private businesses—£414 compared with £344. The majority of private businesses are, of course, humble but it is possible that our sample was not fully representative of the more successful private business people. Government transfers average £50 per spending unit amongst those who receive such transfers.

Just as there are two different means for each of the distributions so there are two corresponding standard deviations. The first standard deviation (for all spending units) is used principally for estimating the standard error of the mean (*i.e.* the mean of all spending units). The second standard deviation is given as an indicator of the variation amongst those spending units that receive some income from the source. For this purpose it should be compared with its corresponding mean. Thus, for example, the standard deviation of rent, interest and dividends of those spending units that receive income from this source is more than twice their mean income from this source (standard deviation £398; mean income £182). This indicates a wide dispersion of incomes of this type, arising, as can be seen from the table, from a lengthening of the tail of the distribution towards the higher values. On the other hand, the standard deviations of both small and large transfers (for those who receive these types of income) are a good deal less than their corresponding means. This indicates that these types of income are fairly well concentrated around their appropriate means. This again can be confirmed by looking at the figures in the top half of the table.

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[1] Excluding income in kind, rent, interest and dividends going to non-profit-making bodies and to the life funds of insurance companies, and accumulated interest on savings certificates. I am indebted to Mr. J. R. Sargent for estimates of the two latter components.

[2] Since the part-time earnings of senior members of the University from teaching, writing, etc., are included under this heading the average is probably lower than it would otherwise be.

The last line of the table gives the number of spending units in the sample. This figure can be used in conjunction with the standard deviation for all spending units to make an approximate estimate of the standard error of the mean appropriate to each distribution. The method of doing this is explained in the appendix.

We can use the figures of mean income from each source (for all spending units) to obtain a picture of the components of total personal money incomes in Oxford. In Table XII this picture is presented alongside a similar analysis of total personal money incomes in the U.K. in 1950, derived from the National Income White Paper.[1]

TABLE XII

Personal Money Incomes, U.K. and Oxford.

(amount received from each source as a percentage of total).

	U.K. 1950	*Oxford*[2] *1950–51*
Wages and salaries	69	72
Professional earnings	2	5
Profits of private business	11	7
Rent, interest, dividends	12	11
Government cash transfers	6	5
Total	100	100

It was not to be expected that the two sets of figures would correspond very exactly, but it is interesting to note the principal differences. Oxford employment income is high, and professional earnings are relatively even higher. This latter is partly to be explained by the inclusion in professional earnings of the proceeds of part-time teaching by senior members of the University. Oxford profits of private business, on the other hand, are rather low, and it may be that owners of private businesses were under-represented in our sample. But there are other possible explanations of this disparity between Oxford and the country as a whole, such as the fact that farmers, whose profits form an important part of the profits of private business, were not covered in the Oxford survey.

Spending units were classified according to their principal source of income and the results of this classification are set out in Table XIII.

If spending units are ranked in order of their incomes we can estimate what percentage of total income is taken by each tenth of the total number.

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[1] Cmd. 8203.

[2] Oxford income from ' other sources ', which is mainly the profits of taking boarders and lodgers, has been included in profits of private business.

TABLE XIII

Principal Source of Spending Unit Income

Source from which largest amount of income received	*Per cent of all spending units*
Employment ...	74
Professional work ...	1
Own business ...	5
Rent, interest, dividends ...	6
Government transfers ...	8
Pensions from employment ...	3
Other sources (mainly boarders and lodgers) ...	4
All spending units interviewed ...	100
Sample (spending units interviewed) ...	416

These figures are given in Table XIV. 31 per cent of income before tax is taken by the top tenth of spending units, 45 per cent by the first two-tenths, and so on. Spending units in the lowest tenth receive only 2 per cent of total income. The top tenth of spending units includes all those with incomes of £750 per year and upwards. Those in the lowest tenth receive less than £135 per year and are mainly retired people. The median income is £395 per year. 50 per cent of spending units receive more than this income; 50 per cent receive less.

TABLE XIV

Percentage of total income before tax received by each tenth of spending units, after being ranked according to income

Spending unit groups after being ranked by by income	*Percent of total income received by each group*	*Cumulative per cent of income received*	*Lowest income in each group*
			£
Highest tenth	31	31	750
Second tenth	14	45	590
Third tenth	10	55	490
Fourth tenth	10	65	435
Fifth tenth	9	74	395
Sixth tenth	8	82	340
Seventh tenth	7	89	280
Eighth tenth	5	94	220
Ninth tenth	4	98	135
Lowest tenth	2	100	—

Spending units were asked whether their total income in the year 1950–51 was larger or smaller than in the previous year, and if so, by how much it had altered. The answers to this question are summarised in Table XV. 41 per cent of spending units reported an increase in income in the past year compared with the year before, 12 per cent reported a decrease, 44 per cent said their income was ' about the same '. In 4 per cent of cases the information was not obtained, mainly because the respondent could not say exactly what change had occurred. The average change in income was an increase of £20 per year but spending units varied widely in their experiences. Three per cent of spending units had received an increase of income of as much as £200 per year or more and 2 per cent had suffered a decrease of similar extent.

TABLE XV

Change in spending unit income between 1949–50 and 1950–51

Change in total income of spending unit	*Per cent of all spending units*
Increase of £200 or more	3
Increase of £50—199	14
Increase of less than £50	24
About the same	44
Decrease of less than £50	5
Decrease of £50—199	5
Decrease of £200 or more	2
Not ascertained	4
All spending units interviewed	100
Mean change[1]	+£20
Standard deviation	£92
Sample (spending units interviewed)	416

[1] Assuming those whose change was not ascertained changed on the average by the same amount as those whose change was ascertained.

(*d*) *Liquid assets*

Liquid assets are defined as those assets that can be converted into cash, either on demand or at short notice, at their face value. Table XVI shows the distribution of spending units according to the value of liquid assets owned, in total and for each type separately. Nearly 4 out of 5 spending units own some liquid assets, but only a little over half of them own as much as £50 or more. The average amount held by all spending units is £321 and this is equivalent to an average holding of £409 by those who hold some assets. The standard deviation is very high—over twice the mean—and the standard error (£24.5) is also high, despite considerable advantages derived from stratification with varying sampling fraction.

The most frequent form in which liquid assets are held is deposits in the Post Office Savings Bank. Nearly half the spending units have assets of this type. Next in order of frequency are Savings Certificates, held by 30 per cent of spending units, and Commercial Bank deposits, held by 26 per cent. About one-quarter of the spending units have shares or deposits in a Co-operative Society and one fifth have deposits in the Trustee Savings Bank. Only a very small proportion of spending units hold liquid assets in other savings banks, in Building Societies or in Defence Bonds.

Depositors in the Post Office Savings Bank have on the average £125 per spending unit, while those who hold deposits in the Trustee Savings Bank hold on the average £152. Average holdings of Savings Certificates by those who hold them are high—£227 per spending unit—and of Defence Bonds higher still—£550 per spending unit. The average holding of shares and deposits in Building Societies is £503.

The relative importance of the different types of liquid assets in the total may be seen by comparing the average holding per spending unit when all spending units are included. Of the total volume of liquid assets held—£321 per spending unit—deposits in Commercial Banks account for over a quarter. Savings Certificates, the next item in order of importance, represent

TABLE XVI

Ownership of liquid assets (per cent of all spending units)

Amounts held	Types of liquid asset								
	Any liquid assets	Post Office Savings Bank	Trustee Savings Bank	Other Savings Bank	Building Society	Co-operative Society	Savings certificates[1]	Defence Bonds	Commercial Bank
Nil	22	53	80	93	95	76	70	93	74[2]
£1—49	26	22	9	5	2	20	14	2	11
£50—99	10	6	3	—		2			
£100—199	9	8	1	1	1	—	2		4
£200—399	7	4	2	—	1	—	5	1	3
£400—999	10	3	2	—	1	—	4	1	2
£1,000 and over...	7	1	—	—	—	—	1	1	2
Not ascertained or only partly ascertained	10	5	2	1	1	1	4	2	4
All spending units	100	100	100	100	100	100	100	100	100
Mean asset holdings[3]	£	£	£	£	£	£	£	£	£
All spending units	321[4]	59	30	3	27	19[5]	67	37	87[7]
Those with assets	409	125	152	37	503	79[5]	227	550	336
Standard deviation[3]	£	£	£	£	£	£	£	£	£
All spending units	657	170	157	18	256	262[5]	183	173	299
Those with assets	731	234	332	56	1076	538[5]	291	563	548
Sample (spending units interviewed)	416	416	416	416	416	416	416	416	416

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[1] Valued at purchase price.

[2] Includes 2 per cent overdrawn.

[3] Assuming those whose holdings were not ascertained were distributed in the same way as those with assets.

[4] This is less than the sum of the other averages in this row because in the case of those with commercial bank accounts any amounts overdrawn were deducted from their other liquid assets before arriving at total liquid asset holdings.

[5] These figures include one exceptional spending unit with total shares and deposits in a co-operative society of £8,000. If he were excluded the appropriate figures would be: mean (all), £3; mean (those with assets), £14; standard deviation (all), £29; standard deviation (those with assets), £57.

[7] Those overdrawn were regarded as having no deposits. If overdrawn accounts were treated as negative deposits average net deposits would be only £60.

a fifth, while deposits in the Post Office Savings Bank amount to almost as much. The remaining third of the total is divided between Trustee Savings Bank deposits, Building Society and Co-operative Society shares and deposits and Defence Bonds. The large figure for Co-operative Society shares and deposits—£19 per spending unit—is due to the freak inclusion in our sample of one spending unit with £8,000 in a Co-operative Society. The average, without this exceptional case, would be only £3 per spending unit. About 60 per cent of liquid assets fall within the National Savings group; the remainder are kept in Building Societies, Co-operative Societies and Commercial Banks.

The standard deviations of those with assets are almost all extremely large in relation to their appropriate means, while the standard deviations of all spending units, including those with no assets, are relatively larger still. This is because all the distributions are J-shaped; in other words, the ownership of liquid assets is very unequally distributed.

Spending units were asked to say how much they held in the various liquid asset forms both at the time of interview and 12 months previously. From this information it was possible to work out what change had occurred in their liquid asset holdings during that period. The results of this analysis are summarised in Table XVII. Twenty-six per cent of spending units reported an increase in their total liquid asset holdings in the period 1950–51 compared with 33 per cent who reported a decrease; 20 per cent made no change in their total holding, while 21 per cent held no liquid assets either at the beginning or end of the period. On average there was a decrease in the total holding of £13 per spending unit (equal to £17 amongst asset-holders), but the standard deviation is very large and the standard error is probably in the region of £13. It is possible, therefore, though somewhat improbable, that the average change in the population was zero or positive, while on the other hand it could have been even more negative than is shown in our estimate. In so far as our figures can be relied upon they indicate a fall in deposits in the Post Office and Trustee Savings Banks, partly offset by an increase in shares and deposits in Building Societies and in holdings of Defence Bonds.

A study of the standard deviations of those with assets suggests that some types of liquid asset holdings are subject to much wider fluctuation than others. For example, the net change in Trustee Savings Bank depositors' accounts—estimated at £67 on the average—was the resultant of large changes by different individuals in each direction. This is reflected in the standard deviation of £516. By contrast, the fluctuations in individual accounts at the Post Office Savings Bank are of much smaller proportions (standard deviation £78). Commercial Bank deposits and Building Society assets of individuals are also, as one would expect, highly variable, while Co-operative Society assets, Saving Certificates and deposits in other savings banks are comparatively stable.

Although stocks and shares are not liquid assets according to our defini-

TABLE XVII

Changes in liquid asset holdings (per cent of all spending units)

Change in amount held by spending unit between May 1950 and May 1951	Types of liquid asset								
	All liquid assets[1]	Post Office Savings Bank	Trustee Savings Bank	Other Savings Bank	Building Society	Co-operative Society	Savings Certificates[2]	Defence Bonds	Commercial Bank deposits[1]
Spending units with no assets at either date	21	51	80	93	95	76	69	93	71
Increase of £200 or more ...	4	1	1	—	—	—	1	1	1
Increase of £100—199	2	1	—	—	—	—	—	—	1
Increase of £25—99	6	4	2	1	—	—	1	—	2
Increase of £1—24	14	9	5	1	2	5	2	—	1
Asset holding unchanged ...	20	17	3	2	2	16	20	4	11
Decrease of £1—24	12	7	2	2	—	1	3	—	2
Decrease of £25—99	10	4	3	1	1	—	2	—	3
Decrease of £100—199 ...	6	2	1	—	—	—	—	—	2
Decrease of £200 or more ...	5	1	1	—	—	—	1	—	4
Not ascertained	1	3	1	1	1	1	2	1	1
All spending units	100	100	100	100	100	100	100	100	100
Mean change[3]	£	£	£	£	£	£	£	£	£
All spending units	—13	—4	—13	—1	+4	—	—	+5	+2
Those with assets	—17	—8	—67	—13	+67	—	—	+66	+7
Standard deviation[3]	£	£	£	£	£	£	£	£	£
All spending units	310	55	236	11	111	9	50	72	255
Those with assets	346	78	516	38	477	18	88	264	470
Sample (spending units interviewed)	416	416	416	416	416	416	416	416	416

[1] Increases in overdrafts were counted as decreases in asset holdings, and vice versa.

[2] Increases were taken at purchase price, decreases at cash received.

[3] Assuming those whose change was not ascertained were distributed in the same way as those with assets who specified their change.

tion, it may be of interest to include at this point the information about their ownership in Oxford. Spending units were asked whether they owned any stocks or shares and, if so, approximately how much they owned at the time of interview. The results are set out in Table XVIII.

TABLE XVIII

Ownership of stocks and shares

Approximate current market value of stocks and shares owned	*Per cent of all spending units*
None	89
Under £100	1
£100—£500	3
£500—£2,000	3
£2,000—£10,000	3
£10,000 and over	1
All spending units interviewed	100
Sample (spending units interviewed)	416

(*e*) *Net saving*

The method of computing net saving has been described earlier. The intention was to measure the extent to which each spending unit either acquired assets out of its income or supplemented its income by disposing of assets. Capital receipts, such as once-for-all gifts and legacies, were not included in income and the spending unit was not credited with saving if it simply kept these receipts intact. On the contrary, a spending unit that spent any part of such receipts—as many are inclined to do—was regarded as having dissaved to that extent.

In Table XIX we give the distribution of spending units according to their net saving, with a sub-analysis for five different income groups. Of all spending unts, 53 per cent saved something in the year 1950-51, 35 per cent dissaved and 11 per cent made no change. The overall effect was a net dissaving of £8 per spending unit. The variation between spending units is very considerable (standard deviation £137) and the standard error of the estimated average is £6.2. Hence the suggestion that Oxford spending units were on the average dissaving during 1950-51 must be regarded with caution. Sampling error alone could have given us the result found in the sample even though the true position was one in which average saving was slightly positive.

It is clear that the average saver contributes much less to the positive side of the account than the average dissaver contributes to the negative side. Average saving of those who saved was about £50; average dissaving of those who dissaved was £100.

Next we come to the analysis by income-groups. Keynes propounded it as a 'fundamental psychological law' that 'men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income'.[1] Much argument has

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[1] *General Theory*, p. 96.

TABLE XIX

Distribution of net saving, within different income-groups

(per cent of spending units in each income group)

Amount of net saving in the year	All spending units	Total income of spending unit				
		Under £200	£200 to £399	£400 to £599	£600 to £999	£1,000 and over
Saved £200 or more ...	2	—	—	—	5	25
Saved £100—199 ...	4	—	1	3	13	26
Saved £25—99	16	3	7	22	41	15
Saved £1--24	31	31	37	34	16	2
No change	11	34	10	5	3	7
Dissaved £1—24... ...	13	10	19	12	5	—
Dissaved £25—99 ...	12	8	14	14	10	5
Dissaved £100—199 ...	6	6	6	5	3	10
Dissaved £200 or more ...	4	4	3	3	2	11
Not ascertained	2	3	2	2	2	—
All spending units ...	100	100	100	100	100	100
	£	£	£	£	£	£
Mean[1]	—8	—36	—29	—8	+41	+82
Standard deviation[1] ...	137	156	136	81	99	392
Sample (spending units interviewed)	416	66	139	107	58	46

[1] Assuming those whose saving was not ascertained were distributed in the same way as those whose saving was ascertained.

developed around this thesis, and some difficulty has been encountered in giving it a precise verifiable meaning, but many would no doubt subscribe to the general idea that the bigger the income, the bigger the proportion saved. In the last few years, however, it has been suggested that the incidence of taxation on the higher income-groups is so heavy that the rich are living on capital. Our results are limited in scope and in reliability but, for what they are worth, they do not give support to that view. They show a consistent rise in the average saving of each income group from the ' under £200 ' class, who are dissaving on the average £36 per annum, to the £1,000 and over class, who save on the average £82 per annum. This can be seen very clearly in Figure 1 where average saving per spending unit is measured vertically while the income groups are arranged in order of income size along the horizontal axis. The width of each group is proportionate to the number of spending units in the group, so that the shaded area of each group measures the total amount of saving or dissaving performed by the group.

It must be admitted, however, that the standard errors of the estimates of average saving in each income group are rather large. The standard deviations of spending unit behaviour are wide and the numbers in the sub-samples are comparatively small. Worst of all is the top income-group which exhibits an extremely wide standard deviation and in which the number of spending units interviewed is only 46. It is noteworthy also that whereas the proportion of spending units reporting positive net saving rises consist-

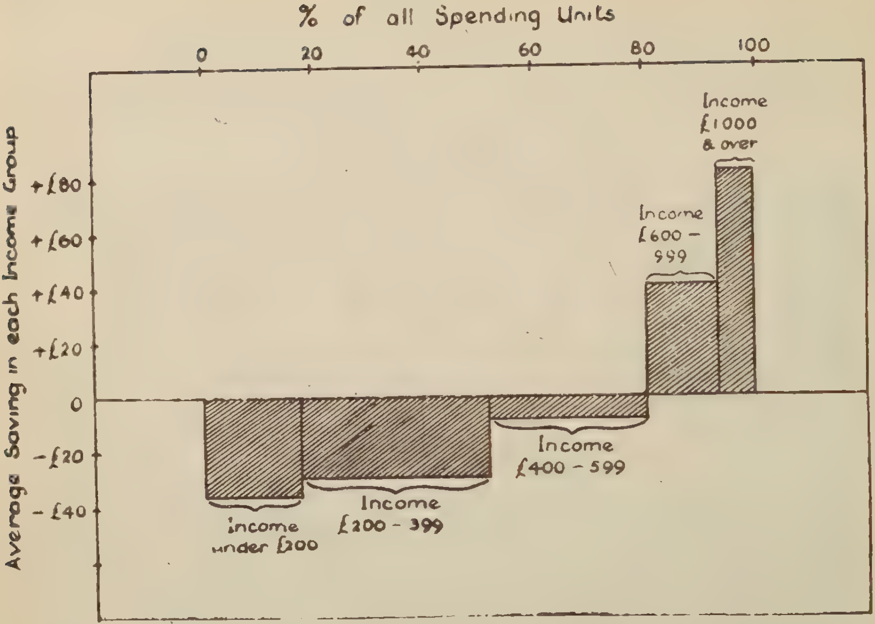

Fig. 1. *Aggregate net saving (or dissaving) of different income-groups.*

ently from 34 per cent in the lowest income group to 45 per cent in group 2, 59 per cent in group 3, and 75 per cent in group 4, it drops to 68 per cent in the top income-group. And there is a marked increase in the percentage of spending units dissaving large amounts in the top income-group. This suggests that although the majority of the higher income people are still saving there are a minority who are living on capital.

Net saving, which is built up from a variety of components, can equally be broken down into various groups of components. One group of special economic interest is what we shall call ' contractual saving '. This is composed of three items : (1) premiums paid for life and endowment assurance, including industrial assurance; (2) contributions to superannuation schemes; (3) repayments of mortgage principal. The common characteristic of each of these types of payment is that they are made in fulfilment of a long-term contract. Table XX shows the distribution of the total contractual saving of spending units. 74 per cent are reported to save by one or more of these methods, but the bulk of these save only quite small amounts, usually through life assurance. Average saving by those who save in this way is £29 per annum—over 10s. per week—which is not inconsiderable. The analysis by income-groups shows a consistent upward trend in contractual saving from lower to higher income-groups. The points are plotted on a graph in Figure 2 and a straight line has been fitted to the data.[1] The correlation between income and contractual saving is + 0.66; the slope of the

[1] For this purpose the data were grouped more finely than in the table.

regression line, which indicates the marginal propensity to save in this way (on the assumption of a constant marginal propensity), is 6.5 per cent, *i.e.*, for each £100 increase in income £6 10s. on the average is saved in this way. While it should be noted that the standard deviation of contractual saving grows considerably from one income-group to another, the overall standard deviation of this variable is much less than any others dealt with so far and the standard error of the estimated mean of £21 per spending unit is less than £2.

TABLE XX

Distribution of total contractual saving, within different income groups[1]
(per cent of spending units in each income group)

Amount of contractual saving in the past year	All spending units	Total income of spending unit				
		Under £200	£200 to £399	£400 to £599	£600 to £999	£1,000 and over
Nil	26	65	27	12	10	16
£1—39	59	33	70	73	60	11
£40—79	8	1	3	13	18	19
£80—119	4	1	—	2	11	24
£120—159	—	—	—	—	1	2
£160—199	1	1	—	—	—	13
£200 or over	1	—	—	—	1	14
All spending units ...	100	100	100	100	100	100
	£	£	£	£	£	£
Mean saving						
All spending units ...	21	6	9	20	35	108
Those saving in this way	29	16	12	23	38	130
	£	£	£	£	£	£
Standard deviation ...						
All spending units ...	44	19	9	20	37	123
Those saving in this way	49	28	9	19	37	124
Sample (spending units interviewed) ...	416	66	139	107	58	46

[1] Contractual saving is defined as the sum of payments for life assurance and supe annuation and repayments of principal on mortgages.

In Figure 2 we have also plotted the average total (net) saving of eac income group for comparison with average contractual saving. It will b seen that, except in one case, total saving of each group is always less tha contractual saving. This means that if spending units had simply carrie out their contractual saving and nothing more, their total saving would hav been a good deal greater than it was in fact. But while spending units wer on the average, putting money away in the form of life assurance, etc., wi one hand they were using up other assets with the other. One cannot he wondering, if it were not for contractual saving (principally life assuranc how much net personal saving would be being done in Oxford.

From the plotted points of total (net) saving in Figure 2 one can haza

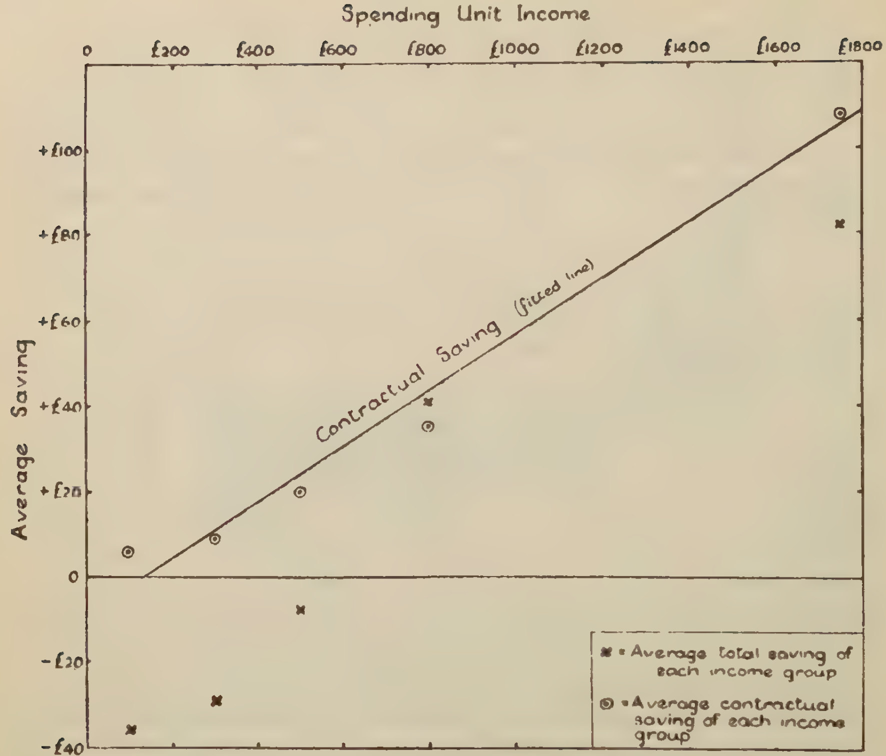

Fig. 2. *Average contractual saving and total saving at each level of income.*

a guess at the possible functional relation between income and saving. The arrangement of the first four points (for incomes up to £1,000 per annum) conveys the impression of an exponential curve; but this ends abruptly and the last point is much lower than one would expect. It is conceivable that this reflects a real difference in economic behaviour at different levels of income—that up to a certain level the law of increasing marginal propensity to save (or at any rate decreasing marginal propensity to dissave) holds good but that beyond that point some people have become disillusioned about saving.

In Table XXI the three components of contractual saving are analysed separately. The most frequent form of contractual saving is through life assurance; two-thirds of all spending units pay some sort of life assurance premiums. The bulk of these, it is true, are small, but an appreciable number pay larger amounts. The average annual amount saved in this way is £12 for all spending units and £18 for those who save in this way. 21 per cent of spending units contribute to superannuation schemes—a surprisingly large number—and their average contribution is £22 per annum.

12 per cent are paying off mortgages and their estimated average repayment of principal is £36 per annum. Of total contractual saving of £21 per spending unit (including all spending units) over half (£12) comes from life assurance and the other two sources contribute just under a quarter each (£4·5 each).

TABLE XXI

The components of contractual saving

(per cent of all spending units)

Amount paid in past 12 months	*Life and endowment assurance premiums paid*	*Contributions to superannuation schemes*	*Repayments of mortgage principal*[1]
Nil	35	79	88
£1—9	32	7	—
£10—19	16	6	3
£20—29	7	4	2
£30—59	6	2	5
£60 and over	3	2	1
Not ascertained	1	—	—
All spending units	100	100	100
Mean saving	£	£	£
All spending units	12	4.5	4.5
Those saving in this way ...	18	22	36
Standard deviation	£	£	£
All spending units	25	16	16
Those saving in this way ...	29	27	30
Sample (spending units interviewed)	416	416	416

[1] In many cases the amount of principal repaid had to be estimated. It was taken as two-thirds of the total premiums paid.

CONCLUSION

The chief object of the pilot survey was to reveal the technical problems of conducting a survey of incomes and savings. This object has been in large measure achieved. Much useful information has been obtained about household and spending unit composition, the variability of the spending unit characteristics studied, the advantages and disadvantages of using rateable value as a stratifying factor, and so on. Much has been learnt also about the design of questionnaire, interviewing technique and coding and tabulation methods appropriate to this type of survey.

The principal results of the survey have been presented above as an indication of the kind of information that can be collected by means of a survey of this sort. These results, it must be emphasised, are applicable only to Oxford and should not be interpreted as being representative of the country as a whole.

H. F. LYDALL.

APPENDIX

Note on the Calculation of the Standard Error of the Mean

(1) *Variables*

The standard error of the mean of a variable is a measure of the variability of the means of repeated samples of a given size about the mean of the population from which the samples are drawn. If the samples are drawn at random the standard error of the mean is equal to the standard deviation of the units of the population divided by the square-root of the number of units in the sample. Thus the accuracy of an estimate of the population mean based on a random sample varies in direct proportion to the square-root of the number of units in the sample and in inverse proportion to the standard deviation of the population from which the sample is drawn. In practice, the standard deviation of the population is not usually known and can be estimated only from the information obtained in the sample.

When the sample design is more complicated, as for example where the sample is stratified and a varying sampling fraction is employed, the calculation of the standard error is also a little more complicated. For the estimates of the mean of a variable that may occur in all parts of the population the standard error of a stratified sample can be calculated from estimates of the standard error of the mean in each of the strata separately. The varying sampling fraction affects only the weights with which the different strata standard errors are combined.

Standard errors have been computed for the three principal variables measured in the pilot survey and are given in Table VI above. In each case they are less than the standard errors of straight random sampling and it can reasonably be assumed that the standard errors of all the other variables will likewise be less than the appropriate standard errors of random sampling. This provides a simple method of deriving an outside estimate of the standard error in those cases where it has not been computed. If the standard error of the estimate of the mean of a variable y is denoted by S.E. $(\bar{y})$, the standard deviation of the units of the sample from the sample mean by s and the number of units in the sample by n, the formula applicable to random sampling is approximately

$$\text{S.E.}\ (y) = \frac{s}{\sqrt{n}}$$

By applying this formula to the information provided in the tables it is possible to derive an outside estimate of the standard error of the mean of each variable. Thus, for example, the standard error of the estimate of mean income from employment (Table XI) will be somewhat less than

$$\frac{\pounds 329}{\sqrt{416}} = \pounds 16 \text{ approx.}$$

If we can assume that the sample mean is normally distributed (as we can for all except small samples) the chances are 19 to 1 that the estimate based on the mean of the sample lies within twice the standard error of the true mean of the population. The estimate derived from the sample is £330. Therefore, it is reasonably safe to assume that the true mean lies somewhere within the range £298 to £362.

The standard errors in this survey are rather large, partly because of the extreme variability of the material being studied, and partly because of the limited size of sample. It has not been thought necessary therefore to dwell upon the refinements which would be brought into the calculation of standard errors in a larger scale survey. These refinements would include the estimation of the effects of double-sampling, two-stage sampling, sampling from a finite population, and so forth, each of which would slightly affect the overall sampling error. Further problems arise also in the calculation of standard errors of variables which occur only in a part of the population studied, *e.g.*, the incomes of persons following a particular occupation, but there is not space to pursue them here. In these cases also the formula for random sampling can be used to provide an approximate estimate of the standard error, provided the number of sample units forming the particular ' domain of study ' is not too small.

(2) *Attributes*

The general principles outlined above are applicable also to the case of attributes, but a different formula is used in computing the standard error. In this case, if the proportion of units in the sample that have a particular attribute A is denoted by p and the proportion without the attribute by q, the standard error of the estimate of the proportion is given by

$$\mathrm{S.E}\,(\mathrm{p}) = \sqrt{\frac{\mathrm{p\,q}}{\mathrm{n}}}$$

For example, the proportion of spending units deriving income from professional earnings is shown in Table XI, as 95 per cent in a sample of 416. The standard error of this estimate for the population is somewhat less than

$$\sqrt{\frac{0{\cdot}95 \times 0{\cdot}05}{416}} = 1 \text{ per cent approx.}$$

and it is therefore reasonably safe to assume that the true proportion in the population lies between 93 and 97 per cent.

PERSONAL SAVINGS THROUGH INSTITUTIONAL CHANNELS 1949 AND 1950

An article published a year ago[1] surveyed personal savings through institutional channels over the period 1937–1949. Data were then not complete for 1949. It is now possible to bring all of the series up to 1949, and some to 1950, while monthly data for National Savings media are available into 1951. Since a shorter period is being covered it is also possible to treat in greater detail certain aspects of savings through particular institutions.

Flows of Savings

Building Societies, Ordinary Life Assurance, and Trustee Savings Banks are the most important of the institutional channels of savings covered here. The relative positions of the major groups of institutions changed somewhat between 1948 and 1949, the chief difference occurring in National Savings media which in 1949 recorded approximately 14 per cent of the total compared with approximately 6 per cent in 1948. All other channels attracted a smaller proportion of the total in 1949 than in 1948, the change being greatest for Registered Provident Societies. Though the data are incomplete for 1950 the relative importance of National Savings media must have declined since substantial dissaving is recorded.

Within each major group of institutions there was also some shifting of relative position between 1948 and 1949. Among Registered Provident Societies (when total repayment of mortgage principal is included) the share of Building Societies advanced from 74.7 per cent in 1948 to 82.4 per cent in 1949. All other Provident Societies attracted a smaller proportion of the total in 1949 than in 1948, and Industrial and Provident Societies moved from a small positive saving in 1948 to a small negative saving in 1949.

Among the forms of National Savings, Trustee Savings Banks continued to record the only substantial positive saving in 1949 and 1950. In all other sectors there was active dissaving in 1950 though the Post Office Savings Bank, and National Savings Certificates had shown positive saving in 1949 due to the accumulation of interest. The contrast between the fortunes of the Trustee Savings Banks and those of other forms of National Savings is thrown into relief by the presence among them of an institution which appears very similar, namely the Post Office Savings Bank. The rate of interest and regulations for maximum holdings are the same for the two institutions, and therefore the difference in their experience over recent years must be due to the various services offered by the Trustee Savings Banks such as the payment of bills for depositors, the offering of considerable sums on demand and larger sums on short notice, and a modified cheque

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[1] Personal Savings through Institutional Channels (1937–1949). BULLETIN of the Institute of Statistics, September 1950, Vol. 12, No. 9. The major sources are largely the same as for the previous article. Thanks are due to the Co-operative Permanent Building Society for their kind permission to use in this article material collected from their records by their Methods and Statistics Department.

TABLE I

Flow of Personal Savings through Institutions as Amounts (£m) and Group Totals as Percentages of Total Flow for all Institutions.

	1948	1949	1950
Registered Provident Societies			
(1) Friendly Societies	+ 3.8	+ 1.6	—
(2) Industrial Assurances	+ 47.1	+ 41.9	—
(3) Industrial and Provident Societies	+ 8.4	— 7.7	—
(4) Building Societies excluding Mortgage Principal Repayments	+ 77.8	+ 97.5	+109.6
(5) Trade Unions	+ 4.4	+ 3.7	—
(6) Superannuation, etc.	+ 17.4	+ 13.7	—
(7) Other	— 0.5	— 0.2	—
(8) Total Registered Provident Societies (Amount)	+153.1	+146.2	—
Total Registered Provident Societies (percentage of total all institutions (21))	+ 35.91	+32.63	—
National Savings			
(9) Post Office Savings Bank	+ 11.3	+ 0.6	— 13.0
(10) Trustee Savings Bank	+ 62.3	+ 54.2	+ 49.3
(11) Government Securities	— 98.0	— 16.4	— 35.3
(12) of which Defence Bonds	— 85.0	— 11.1	— 34.2
(13) National Savings Certificates principal	+ 13.1	— 11.6	— 38.3
(14) National Saving Certificates Accrued Interest	+ 36.8	+ 34.6	+ 30.4
(15) Total National Savings (Amount)	+ 25.5	+ 61.4	— 6.9
Total National Savings (percentage of total all institutions (21))	+ 5.98	+ 13.71	—
Ordinary Life Assurance			
(16) Life and Annuity (Ordinary) (Amount)	+ 87.1	+ 89.6	—
Life and Annuity (per cent of total all institutions (21))	+ 20.43	+ 20.00	—
Building Societies			
(17) Shares	+ 65.6	+ 87.6	+106.2
(18) Deposits	+ 12.2	+ 9.9	+ 3.4
(19) Repayments of Mortgage Principal (Amount)	+160.7	+150.8	+163.8
Repayments of Mortgage Principa (percentage of total all institutions (21))	+ 37.69	+ 33.66	—
(20) Total Building Societies (Amount)	+238.5	+248.3	+273.4
Total Building Societies (percentage of total all institutions (21))	+ 55.93	55.42	—
Total			
(21) Total Institutional Savings Flow (100 per cent) (Amount)	+426.4	+448.0	—

Sources: As given in other tables; also Registry of Friendly Societies Registered Provident Societies Statistical Summary 1940–1950 (London 1951). (4) Change in fund, *i.e.*, shares and deposits only. Business Savings eliminated. (8) Duplication eliminated. Mortgage repayments to Building Societies omitted. Business savings of Building Societies eliminated.

(21) = (8) + (15) + (16) + (19).

system. The sole advantage of the Post Office Savings Bank is the greater ubiquity of offices. In the case of the Post Office Savings Bank the maximum withdrawal on demand is very small, and the procedure for larger withdrawals cumbersome. The frequent need for checking entries in the Post Office Savings Bank account book is also an inconvenience which does not occur in the Trustee Savings Banks while none of the other services of the Trustee Savings Banks are offered. These advantages of the Trustee Savings Banks over the Post Office Savings Bank are all such as might be expected to attract current rather than deposit accounts, and the relative position of the latter institution as a depositiory for longer term saving might well have been unaffected except for two factors. In the first place current business attracted to the Trustee Savings Banks very probably brings in its train longer-term saving for which the two institutions are equally well suited. Secondly, the services offered by the Trustee Savings Banks put them in a position to compete to some extent with ordinary banks offering the advantage of 2½ per cent interest on deposits as well as comparatively small charges for services. Their main disadvantages compared with ordinary banks are their less convenient cheque system, and regulations which though permitting several accounts in one bank, do not allow accounts in different banks.

In the Building Societies all three forms of savings increased in both 1949 and 1950, mortgage principal repayments becoming an increasingly important portion of the total.

Particular Institutions

For the major institutions a more detailed analysis of savings flows is possible by breaking down the total change of funds into deposits and withdrawals and interest accumulation. Some slight information may also be gleaned about the average size of holding and the average addition to holdings during a year. Each of the major institutions will be analysed in this way in the subsequent section.

A more detailed study of the data for building societies, and life assurance, is interesting for the light it throws on contractual savings, while the monthly figures available for National Savings media indicate some important seasonal characteristics.

Building Societies

(1) *Deposit, Withdrawal and Equivalent Accounts*

It can be seen from the table below, which shows the deposit and withdrawal account for deposits and the equivalent accounts for shares and mortgage repayment for 1949 and 1950, that by far the greatest part of savings through building societies is the repayment of mortgage principal. Withdrawals of deposits nearly equate with new deposits in both years, and in 1950 the positive balance is almost entirely due to the accumulation of interest. The volume of business in shares is considerably larger than in deposits, and continues to leave a substantial positive balance. Shares earn approximately 2¼ per cent interest tax-paid whereas deposits earn about 1½ per cent interest. Shares are also rather less liquid than deposits. Thus the greater stability of shares is to be expected. On the mortgage side of Building Societies' business we are concerned only with repayment of mortgage principal. Interest payments are payments for the services of societies.

TABLE II

Composition of Saving through Building Societies, 1949, 1950 (*£m*)

	1949	*1950*
Shares and Deposits		
Share subscriptions	+148.2	+184.4
Share withdrawals	− 79.0	— 98.1
Interest on Shares	+ 17.5	+ 20.1
Increase in Share Liability	+ 86.7	+106.4
Deposits received	+ 46.7	+ 47.2
Deposits withdrawn	— 40.7	— 47.0
Interest on Deposits	+ 3.2	+ 3.3
Increase in Deposit Liability	+ 9.2	+ 3.5
Mortgage Repayments		
Repayment of Principal and Interest	198.4	205.8
of which Interest	37.6	42.0
and of which principal	150.8	163.8

Sources : Registry of Friendly Societies : Building Societies Statistical Summary 1940–50. (London 1951).

Discrepancies with Table I are due to the effect of rounding.

(2) *Size of Holdings, Contributions and Equivalents*

The average size of holding, and contribution towards holdings of shares and deposits of building societies are shown below :—

	Shares		*Deposits*	
	1949	1950	1949	1950
Average holding at end of year[1]	£393	£427	£295	£314
Average contribution during year[2]	£41	£48	£14	£5

[1] Average holding is obtained by dividing the total fund held at the end of the year in the form of shares or deposits by the total number of shareholders or depositors respectively at the end of the year.

[2] Average contribution is obtained by dividing the addition to funds during the year by the mean of the number of shareholders or depositors at the beginning and end of the year.

If these figures are compared with those given below for Trustee Savings Banks it can be seen that the average holding of Building Society shares and deposits is considerably larger. Contributions to shares are also much larger. This tends to confirm the conjecture that Building Societies are mainly a savings institution of the middle classes.

On the mortgage side of Building Societies' business the size of the average mortgage would be the nearest equivalent of a holding as an indicator of the status of savers. The available data summarised in Table III show that most commitments are for comparatively small amounts, 61 per cent being for £500 or less in 1949. Though few mortgages run their full course

TABLE III

Building Societies: Number of Mortgages and Balances due at end of Year.[1]

	1949				*1950*			
	('000) No.	%	(Amt. £m)	%	('000) No.	%	(Amt. £m)	%
£500 and under	892.0	60.94	219.4	23.09	873.6	57.10	212.0	20.08
Over £500—£1,000	317.1	21.71	229.3	24.13	348.1	22.75	252.5	23.91
£1,000—£3,000	232.3	15.87	358.7	37.74	284.5	18.60	438.7	41.54
£3,000—£5,000	15.2	1.04	56.8	5.98	16.9	1.10	64.2	6.08
£5,000 ...	6.5	0.44	86.2	9.07	6.8	0.44	88.6	8.39
	1463.7	100	950.4	100	1529.9	100	1056.0	100

Source: Registry of Friendly Societies: Building Societies. Statistical Summary 1940–50. (London 1951).

[1] Excluding properties in possession and mortgages over 12 months in arrear.

(generally about twenty years) the rise in house-values over the last decade has been so great that the size of mortgage held is of very little use as an index of the mortgagee's present economic status. The average repayment of principal was approximately £111[1] in 1950, and this tends to confirm that savers through mortgage repayments are also of the middle classes.

(3) *The Nature of Contractual Savings through Building Societies*

It is customary to regard the whole of repayment of mortgage principal to building societies as contractual savings. In fact this sum is neither wholly contractual nor does it entirely represent savings out of current income. The following data (Table IV) obtained from the records of the Co-operative

TABLE IV

Repayments of Principal, Inrteest and Premature Repayments in the Co-operative Permanent Building Society, 1938–1950

£000

Year	Total Repayments (Principal and Interest) (1)	Repayments of Interest (2)	Capital Repayments (3)	Premature Redemptions as a percentage of capital repayments (4)
1938	4,604	1,252	3,351	41.2
1939	4,443	1,384	3,060	37.5
1940	3,348	1,394	1,954	21.4
1941	2,979	1,306	1,674	19.9
1942	3,086	1,305	1,782	30.7
1943	3,562	1,285	2,277	42.4
1944	4,231	1,272	2,959	38.2
1945	5,322	1,299	4,024	53.1
1946	6,861	1,299	5,562	59.2
1947	8,793	1,538	7,255	66.9
1948	9,860	1,821	8,039	68.9
1949	9,987	1,992	7,995	71.8
1950	9,803	2,176	7,627	65.1

Source: Methods and Statistics Department of the Co-operative Permanent Building Society.

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[1] The total repayment of principal in 1950 divided by the mean of the total number of borrowers at the end of 1949, and at the end of 1950.

Permanent Building Society throw light on the composition of total principal repayments. It is not claimed that the Society is representative of Societies as a whole, but we understand that it is safe to assume that at least a substantial part of total repayments of mortgage principal to all Societies especially in recent years consists of premature redemptions.[1]

The substantial proportion of total repayments of principal which consists of premature redemptions cannot be regarded as contractual in the usual sense. Though they are of course contractual with regard to the amount paid, they are not contractual with regard to the time of payment. Furthermore, some part of the remainder is also non-contractual in the same way. Though policy varies between societies it is the general practice to accept at least some payments in excess of the contractual minimum. Most societies probably accept excess payments of almost any magntude though because of the way in which interest is credited it is generally profitable to the payee to pay in only fairly substantial sums of multiples of £10.

Of the premature redemptions it appears that almost all are likely to have been financed by the sale of the house for which the mortgage is held. In other words this sum largely represents a transfer from one type of asset to another. Analogous situations undoubtedly occur in other forms of savings here covered, and it is a grave defect of our method of approach that such capital transfers between existing assets cannot as a rule be separated from saving out of current income.

LIFE ASSURANCE

(1) *Deposit Withdrawal and Equivalent Accounts*

For Ordinary Life Assurance the nearest equivalent of a deposit and withdrawal account is an account showing premium and annuity payments and other income, and the outgoing claims paid, surrenders, annuities, etc. The premium and annuity payments represent not only the equivalent of deposits but also the payment for the services of the company. The claims paid, surrenders and annuities represent the equivalent of withdrawals. In the following table data are given for business within the U.K. in the last accounting year for which information is available (see note to table) for companies established within and outside G.B.

The principal source of income is from premiums and this is also the major source of increase in 1949.

(2) *Size and Distribution of Holdings, Contributions and Equivalents*

The equivalent for life assurance of size of holding is the average amount insured by individuals. Again it is not possible to arrive at this figure, but only at the average amount insured per assurance or annuity (see Table VI). This form of averaging probably under-estimates the average holdings of persons since many people hold more than one policy.

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[1] If the proportions of Premature redemptions and other payments of the Co-operative Permanent Building Society are applied to the total Principal Repayments to all Societies, the years 1949 and 1950 would show Premature Redemptions as approximately £100 million in each year.

TABLE V

Life Assurance and Annuity (Ordinary) Revenue Accounts: Business within the United Kingdom 1949[1] *(£m)*

Companies Established:	*Within G.B. Amount*	*Within G.B. Increase or Decrease during 1949*	*Outside G.B. Amount*
Income			
Premiums	153.2	+11.9	11.9
Annuities	13.4	— 2.0	1.2
Interest	51.7	+ 3.3	103.7
Outgo			
Claims paid	81.4	+ 4.8	6.9
Surrenders	14.1	+ 1.9	1.3
Annuities	11.3	+ 0.3	1.5
Bonuses...	0.9	+ 0.1	0.8

Source: Board of Trade: Assurance Companies Acts 1909–1946. Summary of Statements of Assurance Business deposited with the Board of Trade during the year ended 31st December, 1950 (London 1951), pp. 10–13.

[1] The figures are based on the returns of companies for their last accounting year. In most cases this is the same or very nearly the same as the calendar year 1949 but in a few companies this is not the case.

TABLE VI

Average holdings of Life Assurances (Ordinary) in Force: Companies Established within Great Britain 1949[1] *(£)*

Assurances ...	*With Profits*	*Without Profits*	*With and without profits*
Whole term of life	662	711	683
Endowments and Endowment Assurances	336	476	361
Joint Lives, Joint Endowment Assurances and Last Survivor	206	537	243
Other Classes	1612	1529	1538
Average for all assurances	382	749	475

Source: B. of T. op. cit.

[1] These figures are based on the returns of companies for their last accounting year which coincides in most cases exactly, in some cases very clearly with the calendar year but in a few cases diverges by several months.

For all types of assurance the equivalent of average holding (per policy) is approximately £475, and for annuities it is £102. It can be seen readily from the table that the average size of holding equivalent is very different for the various types of assurance.

(3) *Contractual Savings through Life Assurance*

All savings through life assurance are usually regarded as being contractual in nature. In fact what is contractual is the yearly renewal premium, while single premiums, and annuities purchased outright are not contractual in the same sense. This latter element however amounts to a comparatively small proportion of the total income of life assurance companies from premium and annuity payments.

Table VII above shows that the proportion of single premiums in new business is comparatively small. It is of course an even smaller proportion of total premium payments as can readily be seen by comparison with Table VI. It is therefore justifiable though not quite accurate to regard life assurance as contractual savings.

Table VII

New Life Assurances Effected within the United Kingdom during 1949 (£000's)

Companies Established:	*Within G.B.* *Amount*	*Within G.B.* *Increase or Decrease during 1949*	*Outside G.B.* *Amount*
Single Premiums	£2,959	—£1,066	£122
Yearly Renewal Premiums	£18,369	+£227	£1,783

Source: Board of Trade, op. cit. 1950, p. 9.

National Savings

(1) *Deposit, Withdrawal, and equivalent Accounts*

In the table below, this account is shown for the Post Office Savings Bank, Trustee Savings Banks, National Saving Certificates, and Defence Bonds for the year ending March 31st, 1950.

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Table VIII

National Savings: Receipts, Repayments, Interest (year ending March 31st, 1950)

	(£ Million)
Post Office Savings Bank	
Receipts	+350.0
Withdrawals	—409.9
Interest	+ 47.7
Balance	— 12.2
Trustee Savings Banks	
Receipts	+298.7
Withdrawals	—267.6
Interest	+ 19.9
Balance	+ 51.0
National Savings Certificates	
Bought	+102.5
Cashed (Principal only)	—125.9
Interest (accrued less paid)	+ 33.2
Balance	+ 9.8
Defence	
Receipts	+ 24.4
Withdrawals[1]	— 43.0
Balance	— 18.6

Source: C.S.O. Annual Abstract of Statistics 1938–1949 (London 1951).

[1] Excluding repayments of maturity of £0.9 million.

Of the various forms of National Savings the Post Office Savings Bank did the greatest volume of business, but the greatest positive saving flowed into the Trustee Savings Banks which was the only channel where receipts exceeded withdrawals. The positive balance of saving through National Savings Certificates was the result of interest accumulation since encashments exceeded purchases. Comparing the calendar years 1949 and 1950, the net savings for which are given in Table II, we see that the positive balance for National Savings Certificates shown in 1949 was the result of interest accumulation while in 1950 this was insufficient to compensate for large encashments. The small positive balance reached in the Post Office Savings Bank in 1949 as a result of interest accumulation, became a negative balance in 1950 when interest accumulation was insufficient to bridge the gap between deposits and withdrawals.

(2) *Size of holding and contribution*

In the Trustee Savings Bank the average size of account in the ordinary department in 1949 was £101.[1] In the special investment department the average size of account was £355.[1] This includes active and inactive accounts. In the same year the average size of contribution for both departments was approximately £12.[2] In fact these figures may underestimate the holdings of individuals, and also contributions since it is possible for individuals to have several separate accounts. On the other hand some accounts are jointly held.[3]

Such other data as are available for this aspect of National Savings were given in the article published last year.

(3) *Other Characteristics of National Savings*

The following table gives monthly data for savings flows through National Savings Channels in 1949, 1950, and 1951. The Post Office Savings Bank, and the Trustee Savings Banks both show the effect of seasonal movements in saving. This clearly indicates that both these media are being used for short-term savings to a considerable extent. In the case of the Trustee Savings Bank the flow of savings is strongly affected by summer holiday and Christmas expenditure. It also appears to be affected at the beginning of each year by another factor which may be the special bonus issued at Christmas time by many firms, or else New Year resolutions which all too characteristically die an early death.

The new issues of National Savings Certificates and Defence Bonds put on sale on February 1st, 1951, had a marked influence on saving through these channels. The ninth issue in the form of fifteen shilling National Savings Certificates offered an average annual compound interest rate of £3 0s. 11d. per cent instead of the £2 13s. 2d. per cent earned by the previous ten shilling certificates, and the new issue remained exempt from income tax. Purchases up to 500 units of the new issue could be made irrespective of holdings of other issues. The new fifth issue of Defence Bonds offered 3 per cent interest as compared with 2½ per cent on the previous issue but the 1 per cent tax-free bonus issued on redemption after 10 years on the 4th

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[1] Total due to depositors at the end of year divided by number of accounts at end of year.

[2] Increase in amount due to depositors during year divided by the mean of the number of active accounts at the beginning and at the end of the year.

[3] It appears probable that the figures overestimate the holdings and contributions of individuals rather than underestimate since it seems likely that there are more persons sharing joint accounts than persons having several accounts.

TABLE IX

Monthly Flow of Savings into National Savings Media 1949, 1950, 1951 (£m)

Year	*Month*	*P.O.S.B.*	*T.S.B.*	*N.S.C.*	*G.S.*	*Total*
1949	February	7.6	8.5	4.4	—0.2	20.3
	March	2.9	7.5	6.2	—0.9	15.7
	April	2.7	7.0	3.5	—0.7	12.5
	May	— 1.8	4.7	1.8	—0.7	4.0
	June	— 5.4	1.4	2.1	—0.5	— 2.4
	July	— 7.0	—2.5	—0.5	—1.1	—11.1
	August	— 2.6	2.3	0.2	—0.9	— 1.0
	September	1.6	5.5	0.3	—2.0	5.4
	October	0.3	7.4	0.2	—1.7	6.2
	November	— 4.7	6.5	—1.0	—4.7	— 3.9
	December	— 7.8	—4.9	0.3	—1.7	—14.1
1950	January	7.4	9.2	1.0	—2.1	15.5
	February	5.1	7.9	0.9	—3.3	10.6
	March	— 0.5	6.5	0.6	—3.5	3.1
	April	1.6	7.0	0.0	—3.6	5.0
	May	— 2.8	4.3	—1.2	—3.6	— 3.3
	June	— 3.7	1.0	—2.5	—2.8	— 8.0
	July	— 4.8	—1.9	—2.7	—3.2	—12.6
	August	— 2.9	2.2	—2.3	—2.6	— 5.6
	September	— 0.5	5.5	—0.7	—2.8	1.5
	October	0.6	8.2	—0.3	—2.4	6.1
	November	— 2.6	6.3	—0.9	—2.2	0.6
	December	— 9.9	—6.9	0.2	—3.2	—19.8
1951	January	7.2	7.8	0.6	—2.2	13.4
	February	— 7.3	1.5	23.5	+3.4	21.1
	March	— 9.4	2.1	11.0	+2.0	5.7
	April	— 5.6	4.1	7.5	+0.3	6.3
	May	—13.9	—0.8	8.7	—0.2	— 6.2
	June	—10.1	—2.7	3.7	+0.4	— 8.7

Source : C.S.O. Monthly Digest of Statistics.

issue was not provided on the new issue. Limits on holdings of Defence Bonds remained unchanged.

The effect of the new issues was strongly and immediately felt in both channels and continues to show in the June figures. The available data on certificates bought and principal repaid show that while purchases rose sharply, encashments also rose slightly, and continued in June to be rather higher than average, suggesting that some eighth issue certificates were exchanged for the new issue.

* * *

Certain forms of personal savings even through institutional channels cannot be separated from the savings of other sectors of the economy. The most glaring omission in the present article is that of savings through ordinary bank deposits where the only available data cover all accounts of the London Clearing Banks. Though changes in these have been great during the post-war years there is no justification for assuming even that personal accounts have moved in the same directions as the totals. Similarly data on changes in the cash-holdings of individuals are inadequate. The total for currency circulating with the public cannot be separated into personal and non-personal holdings.

It can scarcely be doubted that the majority of the British public have learned by experience the economic implications for themselves as individuals of war-scares, and price rises. Few can have remained unaffected by both during the last two years and many, including small-scale savers, must be well aware of the disadvantage of saving compared with immediate expenditure. Purchases of durable goods are one form of self-defence in such circumstances. Again the available data are not entirely satisfactory. The estimates summarised below cover not only durable goods, but also other household goods. They cover all expenditures out of personal income which by definition includes not only the income of individuals but also of charities and other non-profit making institutions.[1]

TABLE X

Personal Expenditure on Household Goods (£m)

		(1) At Current Market Prices	(2) Revalued at Average 1948 prices
Quarter			
1959	1	129	127
	2	145	143
	3	145	142
	4	177	175
1950	1	152	149
	2	157	152
	3	164	156
	4	203	182

Source : C.S.O. Monthly Digest of Statistics.

Note. It should be noted that this table refers to consumption of all types of household goods by persons as defined in the National Income White Papers.

Column (1) above reflects the effect both of increased quantities, and of increased prices while column (2) isolates the effect of increased quantities purchased. Though both show seasonal variation they also show a considerable rise over the period. The seasonal variation in purchases of household goods corresponds with the seasonal variation at the beginning, and end of calendar years shown by National Savings Media. Though the connection cannot of course be traced in any greater detail it appears highly probable that both seasonal and overall increases in purchases of durable goods, are financed in part by dissaving in institutional channels or out of current income which would otherwise have reached these channels.

ESME PRESTON.

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[1] See : C.S.O. Monthly Digest of Statistics Supplement Definitions and Explanatory notes, January 1951, pp. 56–58.